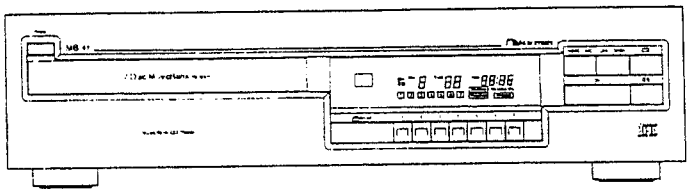
SERVICE MANUAL

MB-4s

MusicBank CD Player



Nakamichi

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Specifications

Schematic Diagram (See attached sheet.)

1. GENERAL

1.1. Product Code

V331

1.2. Destinations

USA, CAN, EP, UK, AUS, OTR, JPN

Abbreviations

USA — U.S.A.
CAN — Canada
EP — Europe
UK — United Kingdom
AUS — Australia
OTR — Other
JPN — Japan

1.3. Cautions/Warnings

(1) Product Safety Notice

Parts marked with the symbol ⚠ in the schematic diagram have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer. It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedures.

(2) Leakage Current Check/Resistance Check

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamp, or if the resistance from chassis to either side of the power cord is less than 240 k ohms, the unit is defective.
WARNING — DO NOT return the unit to the customer until the problem is located and corrected.

(3) Protection of Eyes from Laser Beam

To protect eyes from invisible laser beam during servicing, *DO NOT LOOK AT THE LASER BEAM.*

- Laser Diode Properties

Material:	GaAlAs
Laser output:	0.5mW Max.
Wavelength:	790 ± 25 nm
Emission duration:	Continuous

(4) Laser Caution

CAUTION

Adjusting the knobs, switches, and controls, etc. or taking actions not specified herein may result in a harmful emission of laser beams. This Compact Disc Player must be adjusted and repaired only by qualified service personnel.

OBSERVERA!

Sådana inställningar av rattarna, omkopplarna eller övriga kontrollknappar som inte är beskriva i bruksanvisningen kan resultera i farlig laserutstrålning. Justering eller reparation av denna kompaktskivspelare skall endast utföras av kvalificerad servicepersonal.

OBS!

Indstilling af knapper, cmskiftere og øvrige kontrolknapper, som ikke følger den i brugsanvisningen beskrevne måde, kan resultere i farlig laserudstråling. Justering eller reparation af denno CD-afspiller må kun udføres af kvalificeret servicepersonale.

OBS!

Justering av ratt, brytere og kontroller andre enn de som er beskrevet her, kan resultere i farlig laserbestråling. Justering eller reparasjon av denne kompaktdiskspilleren ma bare utføres av kvalifiserte fagfolk.

HUOMAUTUS

Jos nuppeja, kytkimiä ja säätimiä ym, säädetään tai laitetta käytetään toisella tavalla kuin on selostettu, tuloksena saattaa olla vaarallista lasersäteiden vuotoa. CD-soittimen säätö ja korjaus on jätettävä aina asiantuntevan huoltoteknikon tehtäväksi.

ADVERSEL: USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSAETTELSE FOR STRÅLING.

VARO!: AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

VARNING —OSYNLIG LASERSTRÅLNING NAR DENNA DEL ÄR ÖPPNAD. BETRAKTA EJ STRÅLEN.

CLASS 1
LASER PRODUCT

THIS COMPACT DISC PLAYER IS CLASSIFIED AS A CLASS 1 LASER PRODUCT.
THE CLASS 1 LASER PRODUCT LABEL IS LOCATED ON THE REAR EXTERIOR.

1.4. Voltage Selectors

Voltage selector is installed on the Rear Panel of the MB-4s (OTR). The voltage selector can select either 110-127V or 220-240V at customer's disposal.

1.5. Handling the Laser Pickup

In case of repair or replacement of the Laser Pickup, pay attention to the following handling instructions since the laser diode in the Laser Pickup is not resistant to static electricity.

(1) Grounding

When you repair a Laser Pickup, first ground the human body, as well as the measuring instruments and other tools (with particular caution to soldering iron). What's more, your workbench and floor should desirably be grounded using conductive sheet or copper plate. See Fig. 1.1.

NOTE: Be careful so as not to let your clothes touch the Laser Pickup, as static electricity on the clothes will not be released even if your body is grounded.

(2) Discharge of Electricity

Be sure to discharge electricity from objects brought into contact with the Laser Pickup (i.e., soldering iron, tweezers, probes, volt-ohm-meter probes, etc.) before starting work by contacting them with the body chassis. Besides, never touch the Laser Pickup while power is applied.

(3) Soldering Iron to be Used

The soldering iron for use in repair work should be: (1) a ceramic soldering iron, (2) a soldering iron with its metal part grounded, or (3) a soldering iron whose insulation resistance after five minutes of power application is 10 M-ohm or more at 500 VDC. Soldering should be completed promptly, at a soldering iron temperature of 320° max (39 W). A soldering iron heated above this temperature can break down the laser diode.

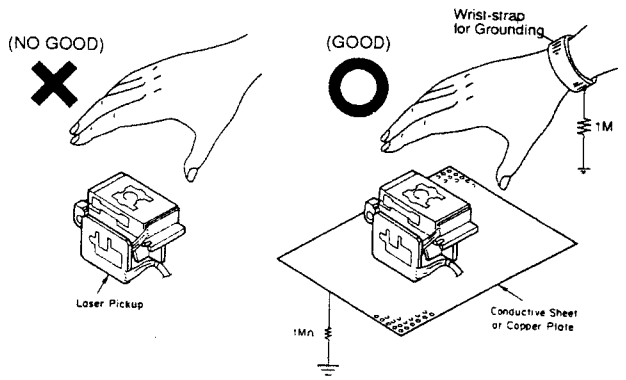


Fig. 1.1 Handling the Laser Pickup

(4) Shortcircuiting the Laser Pickup

When replacing the laser pickup, shortcircuit the lands "A" with a soldering iron before disconnecting the connectors CP-101 and CP102 from the Main P.C.B. Ass'y.

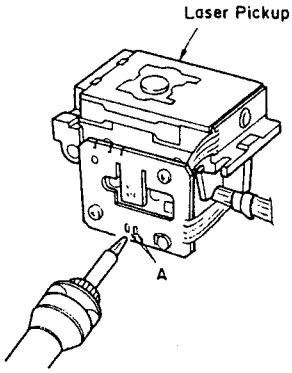


Fig. 1.2 Shortcircuiting the Laser Pickup

1.6. Stocker Operation Check Function at Power ON

A series of stocker operation can be checked at power ON by grounding the RAM Reset signal line on the Main P.C.B. Ass'y. This function is useful to check whether any CD is left in the stocker before returning the unit to the customer.

(1) Turn OFF the power.
(2) Remove the Top Cover Ass'y.
(3) Short the RAM Reset jumper wires. See Fig. 1.3.
(4) Turn ON the power and then remove shorting.
(5) The stocker raises to the uppermost position, and then starts a series of CD unload operation as follows:

Disc No.: 7 → 6 → 5 → 4 → 3 → 2 → 1

(6) After completion of the stocker operation, the unit returns to standby condition.

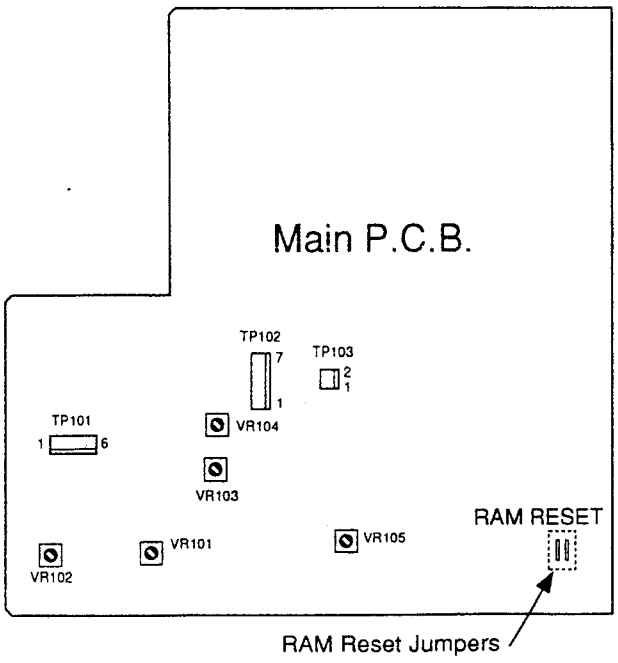


Fig. 1.3 Stocker Operation Check at Power ON

1.7. Package Ass'y and Accessary Ass'y

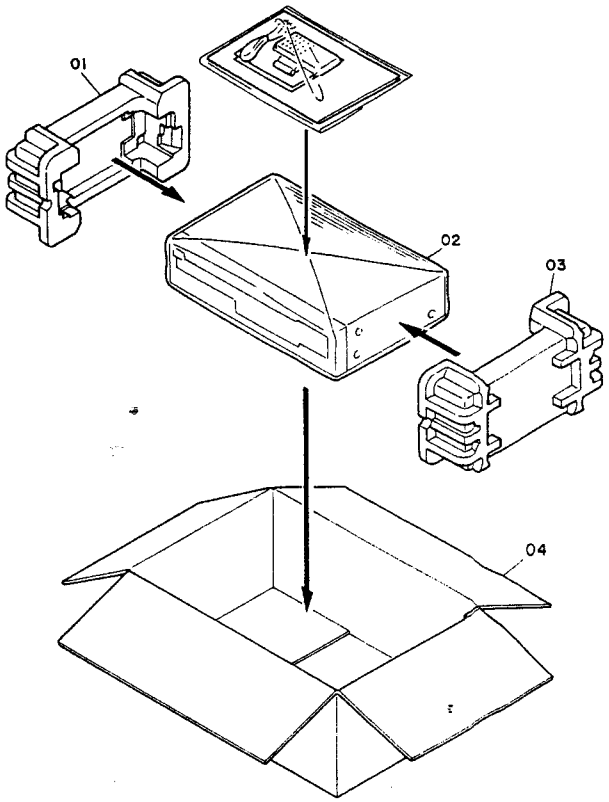


Fig. 1.4

Schematic Ref. No.	Part No.	Description	Q'ty
	—	**Package Ass'y**	
01	0F04817A	Packing L	1
02	0F04818A	Soft Sheet	1
03	0F04822B	Packing R	1
04	0F04816A	Carton Box	1

Schematic Ref. No.	Part No.	Description	Q'ty
	DA04778A	**Accessory Ass'y (USA, CAN)**	1
	DA04786A	**Accessory Ass'y (EP)**	1
	DA04783A	**Accessory Ass'y (UK)**	1
	DA04785A	**Accessory Ass'y (AUS, OTR)**	1
	DA04784A	**Accessory Ass'y (JPN)**	1
	DG04775A	Remote Control Unit	1
	0B90462A	Battery UM4x1	2
	0D03092B	Poly Bag	1
	0D06431A	Pin Plug Cord	1
	0D06503B	Owner's Manual (English)	1
	0D06504B	Owner's Manual (French)	1
	0D06505B	Owner's Manual (German)	1
	0D06506B	Owner's Manual (Japanese)	1

2. MECHANICAL ADJUSTMENTS

2.1. Gear Positioning in Side Chassis R Section

When one of the gears in the Side Chassis R section is replaced, perform the following gear positioning:

2.1.1. Positioning of Three Gears

Refer to Fig. 2.1.1.

(1) Align the marks (holes) of the S-I-Gear with the mark (hole) of the S-F-Gear and S-M-Gear as shown in the figure.

NOTE: The S-F-Gear and S-M-Gear have another mark (hole). Pay attention so as not to align with the wrong hole.

(2) Insert the pin of the Tray Arm Ass'y into the groove of the S-M-Gear as shown in the figure.

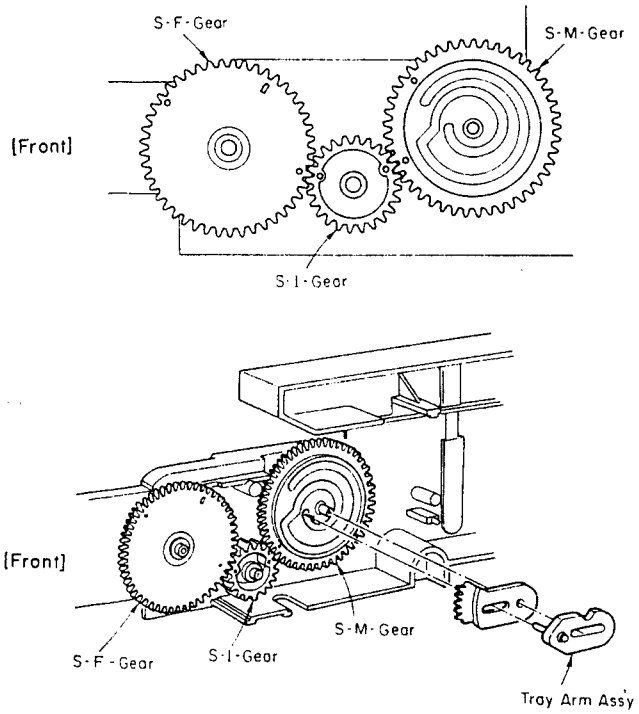


Fig. 2.1.1 Positioning of Three Gears

2.1.2. Positioning of the Change Gear

Refer to Fig. 2.1.2.

(1) Position the Change Gear so that the notch of the Change Gear meets the mark "A" of the S-F-Gear.

(2) Insert the pin of the Change Plate Ass'y into the groove of the Change Gear, and mount the Change Plate Ass'y with three screws.

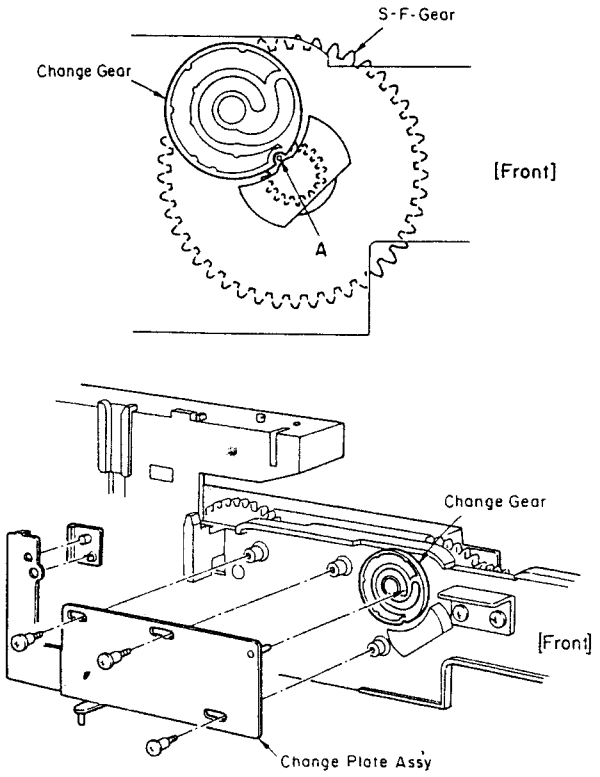


Fig. 2.1.2 Positioning of the Change Gear

2.2. Tray Ass'y Positioning

When installing the Tray Ass'y on the mechanism unit, perform the following positioning. Refer to Fig. 2.2.

(1) Install the Tray Ass'y so that the protrusion "B" of the Tray Ass'y is positioned between marks (holes) "C" of the S-F-Gear.

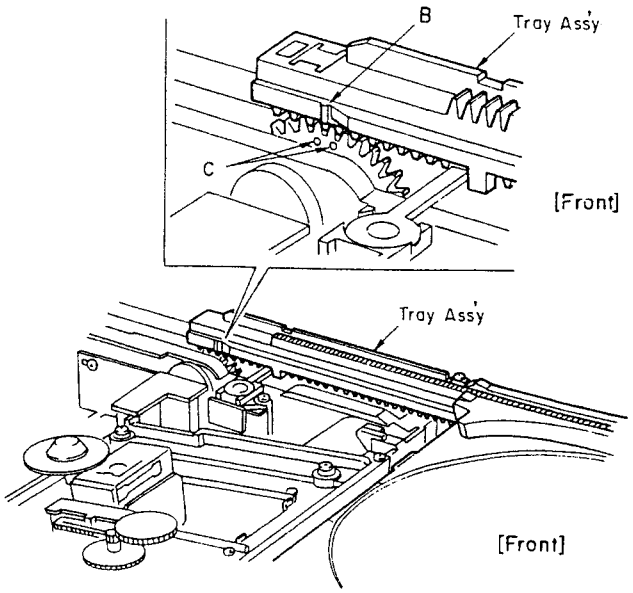


Fig. 2.2 Positioning of the Tray Ass'y

2.3. Lubrication

Apply the specified lubricant (grease) to the following places when parts are replaced.

Fig.	Ref. No.	Location	Lubricant
(Mechanism Ass'y)			
6.3	07	Stocker Ass'y	
		• Carriage contacting surface (both sides)	FLOIL FL777
		• Boss (both sides)	FLOIL G425
	09	Side Chassis L	FLOIL G425, FL777
	10	Side Chassis Section	FLOIL G425, FL777
	13	Tray Ass'y	
		• Carriage contacting surface (Upper/Lower, both sides)	FLOIL FL777
		• Carriage Shaft R	FLOIL G425
		• Carriage Shaft L	FLOIL FL777
(Side Chassis R Section)			
6.4	01	Change Plate Ass'y (3 places)	FLOIL G425
	03	Change Gear (Groove)	FLOIL G425
	06	Side Chassis R Sub Ass'y (5 places)	FLOIL G425
	09	Side Idler	FLOIL G425
	12	S-M-Gear (Groove)	FLOIL G425
	13	Tray Stopper	FLOIL G425
	14	Tray Arm Ass'y	FLOIL G425
	15	Gear Holder (Groove)	FLOIL G425
(Main Chassis Section)			
6.5	04	Mecha UD Cam	FLOIL G425
	11	D5-ST-Gear	FLOIL G425
	12	Lock Idler	FLOIL G425
	13	D7-ST-Gear	FLOIL G425
	14	D6-ST-Gear	FLOIL G425
	16	Stocker Cam (5 places)	FLOIL G425
	18	ST-Worm-Gear	FLOIL FL777
	20	Worm Shaft (Shaft head and shaft end)	FLOIL G425
	24	Main Chassis Ass'y (7 places)	FLOIL G425

NOTE: We suggest that you use the above specified lubricant or equivalent type.
The company dealing in the above lubricant is as follows:
Kanto Chemicals CO., Ltd., 2-7 Kanda Sakuma-cho,Chiyoda-Ku, Tokyo, Japan
•Name of Lubricant: FLOIL G425/FLOIL FL777

3. MEASUREMENT INSTRUMENTS AND JIGS

(1) Oscilloscope (15 MHz or more)
(2) DC Voltmeter
(3) Oscillator
(4) Frequency Counter
(5) Philips Test Disc 5/5A or 444/444A
(6) SONY Test Disc YEDS-7 (Type 3)
(7) CD Player Test Unit Set (DA09157A)
Consisting of the following items:
- CD Player Test Unit 1 pce.
- Test Unit Cable for MB-1s/2s/3s/4s, 1000Mb, CD Player 1/2/3, Sound Space 7 (DA09158A) 1 pce.
- CD Player 4 Test Unit Cable (DA09156A) 1 pce.
- CD Cassette Player 1 Test Unit Cable (DA09162A) 1 pce.

NOTE: If you already have the CD Player Test Unit for the following Models, you can use it for MB-4s.
- MB-1s/2s/3s
- Sound Space 7
- 1000Mb/i, 1000Mb
- CD Player 1/2/3
- CD Cassette Player 1
- CD Player 4 (The test unit cable is not compatible with that for MB-4s.)

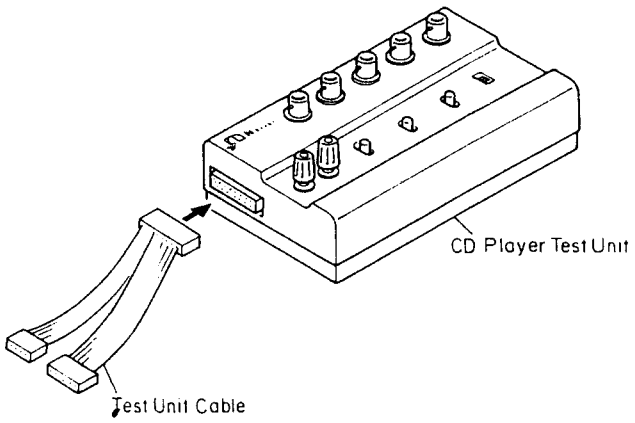


Fig. 3.1 Test Unit

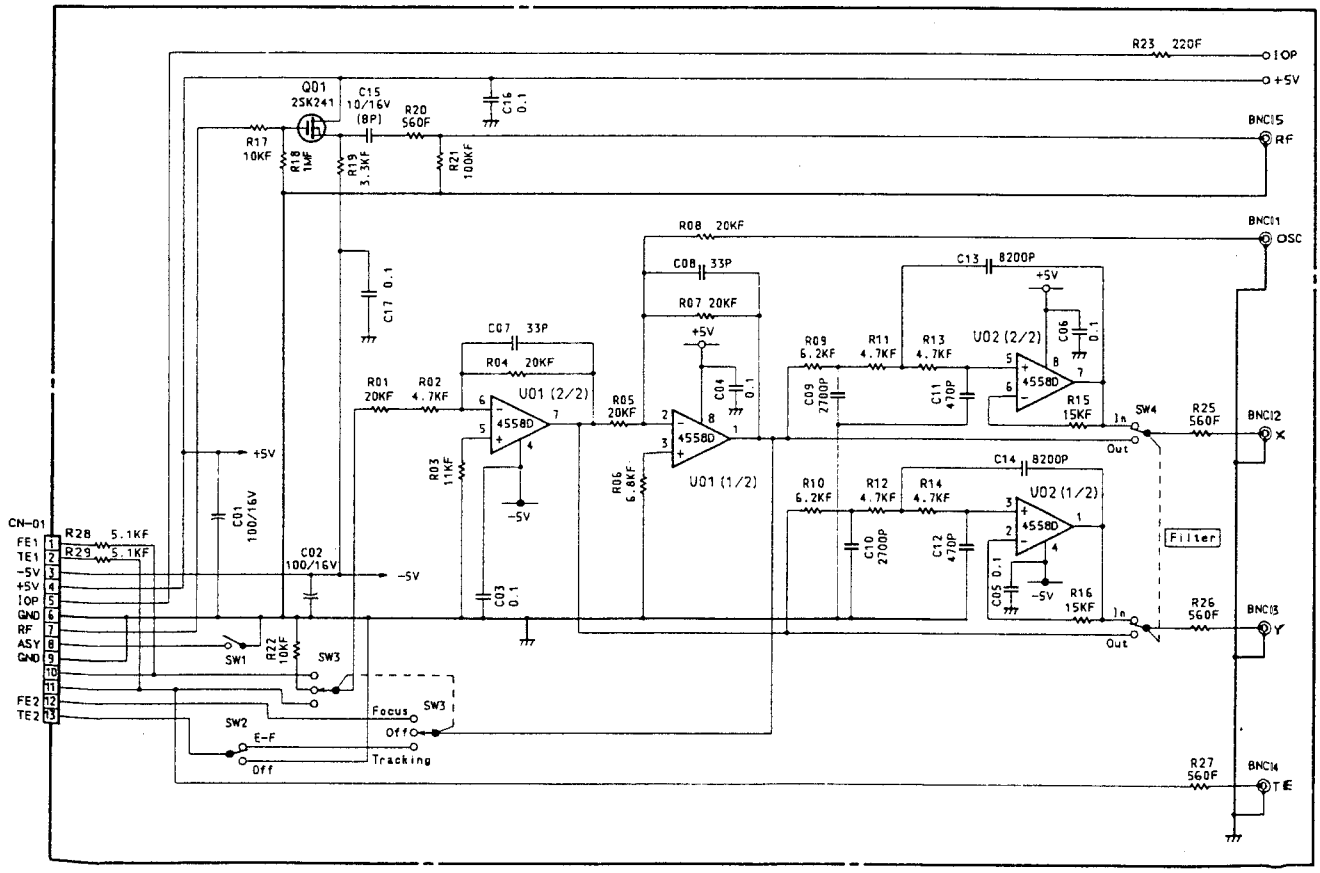


Fig. 3.2 Circuit of the Test Unit

4. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

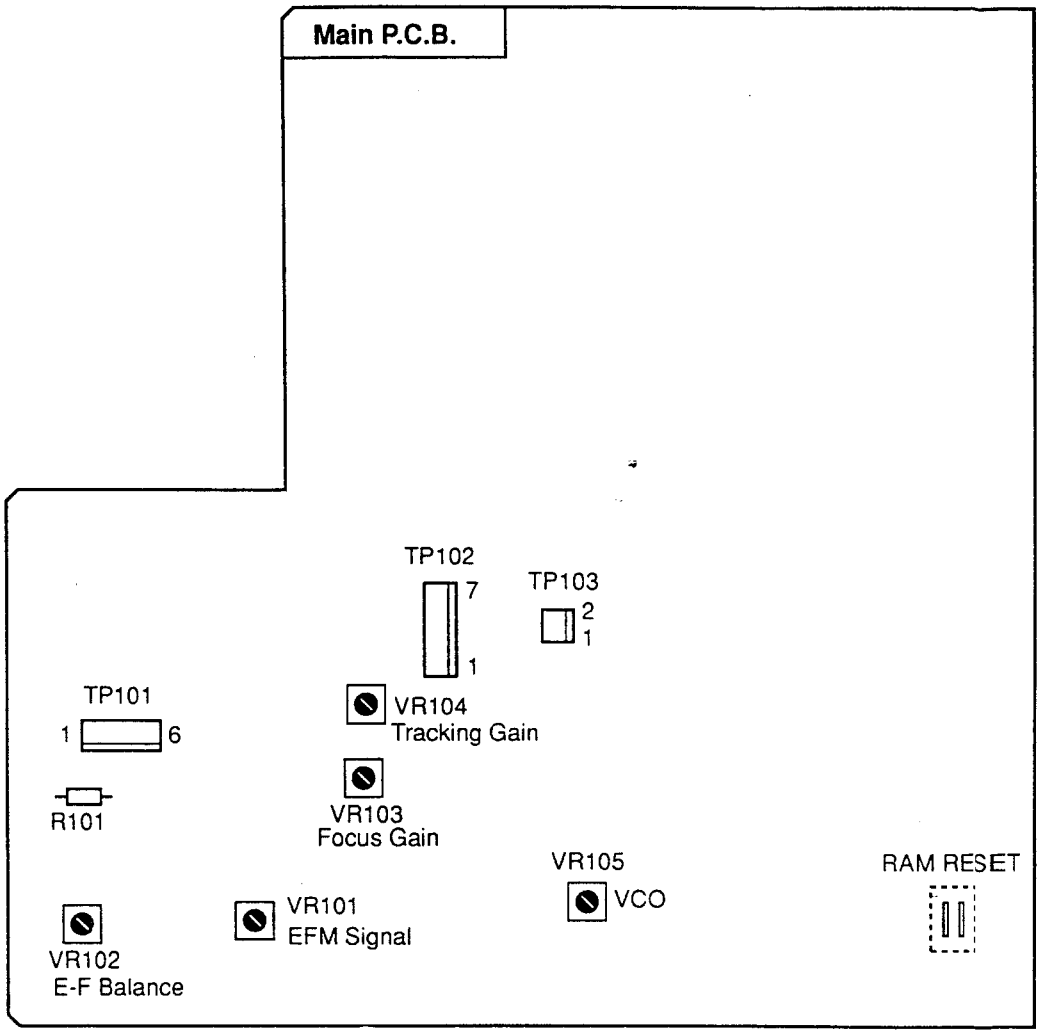


Fig. 4

5. ELECTRICAL ADJUSTMENTS

NOTES:

1. Preset position of the semi-fixed volumes:
   When the Main P.C.B. Ass'y or semi-fixed volume VR101, VR102, VR103, or VR104 is replaced with new one, preset the following semi-fixed volumes to their mechanical center positions before starting adjustment.
   VR101, VR102, VR103 and VR104

2. Connecting the Test Unit:
   For adjusting the steps 4 through 6, the Test Unit is required. In steps 4 through 6 **ONLY,** connect the 7P cable of the Test Unit to the test connector TP102 on the Main P.C.B. Ass'y.

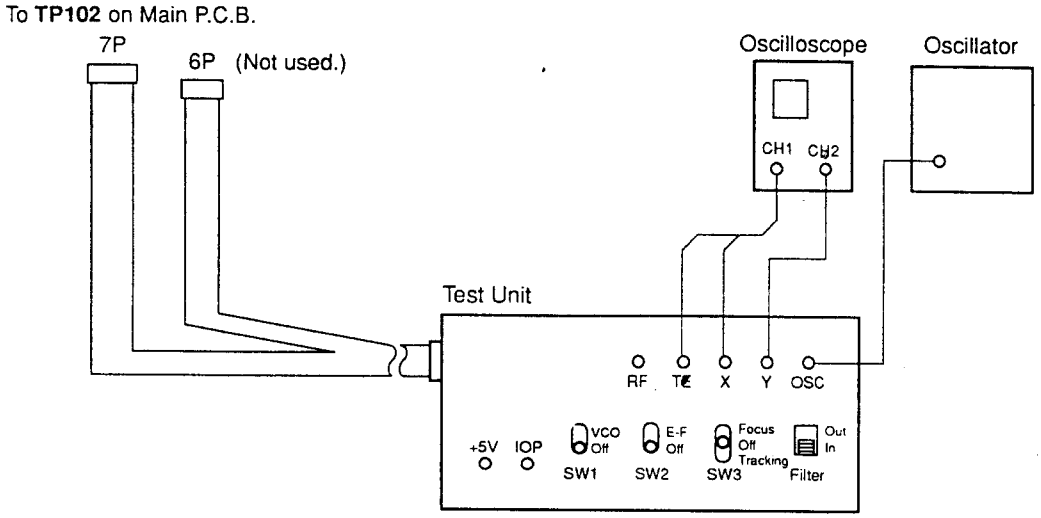
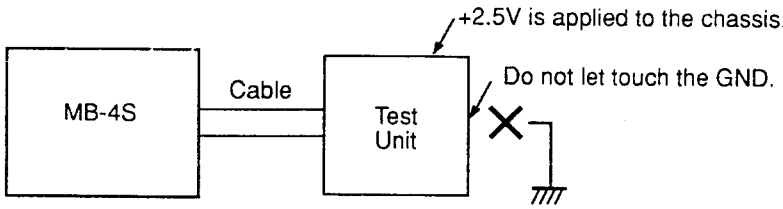
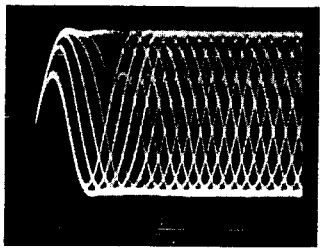
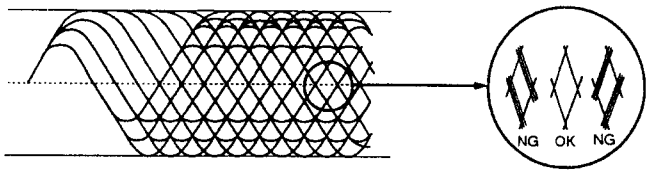


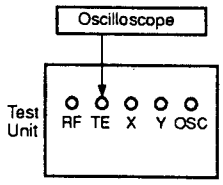
Fig. 5 Test Unit Connecting Diagram

CAUTION:
DO NOT let touch the chassis of the Test Unit to the measurement instrument as well as the MB-4s since +2.5V is applied to the chassis of the Test Unit when the test unit cable is connected to the MB-4s.

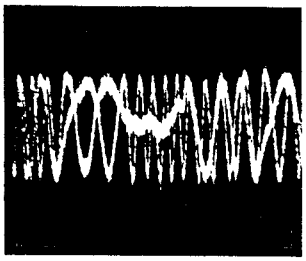


STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	ADJUST-MENT	REMARKS
1	Laser Current Check	Philips Test Sample 5 or 444	DC Voltmeter between pins 1 (IOP) and 3 (+5V) of TP101 on Main P.C.B. DC Voltmeter Common: Pin 3 (+5V)		1. Turn the power ON and load the test disc. 2. Play back the test disc and calculate the current flowing into R101 on the Main P.C.B. Ass'y from the following formula. $I = \frac{\text{Voltmeter Value}}{\text{R101 (10 Ohms)}} = \text{oo.o mA}$ 3. Check that the calculated current is in a range of 50 to 60 mA. **Note**: If the current doubles, pickup will be defective.
2	VCO Frequency Adjustment	None	Frequency Counter (10/1 probe) between pins 2 ($\overline{\text{PLCK}}$) and 1 (GND) of TP-103 on Main P.C.B.	Main P.C.B. VR105	1. Set the shorting pin between pins 5 (GND) and 6 (ASY) of TP101 on Main P.C.B. 2. Adjust VR105 to obtain 4.322 ±0.005 MHz on the frequency counter. 3. Remove the shorting pin.
3	EFM Signal Adjustment	Philips Test Sample 5 or 444	Oscilloscope between pins 2 (RF) and 4 (VR) of TP101 on Main P.C.B. Oscilloscope Common: Pin 4 (VR)	Main P.C.B. VR101	1. Play back the first track of the test disc. 2. Adjust VR101 until waveform amplitude becomes maximum and the waveform becomes clear (not thick) as shown below:  Oscilloscope Setting: AC Mode, 0.2 V/div, 0.5 µs/div
					
4	E-F Balance Adjustment (Supple-mentary Beam Balance Adjustment)	Philips Test Sample 5 or 444	Oscilloscope to TE Connector of Test Unit	Main P.C.B. VR102	1. Connect the 7P cable of the Test Unit to TP102 on the Main P.C.B. Ass'y. 2. Play back the first track of the test disc. 3. Set SW2 of the Test Unit to E-F position. 4. Adjust VR102 so that the center level of the waveform is within the range of 0 V ±0.1 V DC as shown below: (To be continued.)

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	ADJUST-MENT	REMARKS
	SW1: OFF SW2: E-F SW3: OFF Filter: OUT				



Connecting Diagram



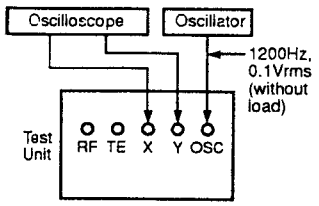
--- Center Level

Oscilloscope Setting:
DC Mode, 1 V/div, 1 ms/div

5. Set SW2 to OFF position.
6. Remove the 7P cable from TP102.

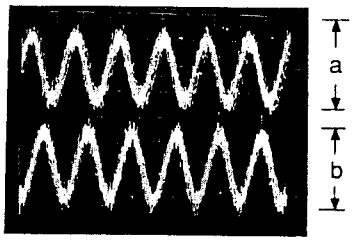
STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	ADJUST-MENT	REMARKS
5	Tracking Gain Adjustment	Philips Test Sample 5 or 444	Oscillator to OSC Connector of Test Unit Oscilloscope to Test Unit • CH1 to X • CH2 to Y	Main P.C.B. VR104	1. Connect the 7P cable of the Test Unit to TP102 on the Main P.C.B. Ass'y. 2. Set the output of oscillator to 1200 Hz, 0.1 Vrms without connecting it to the Test Unit. 3. Note the position of the output control of the oscillator. 4. Connect the oscillator output to OSC connector of the Test Unit and set its output to 0 V. 5. Set the Filter switch of the Test Unit to IN position. 6. Play back the first track of the test disc. 7. Set the output control of the oscillator to the position noted in 3. 8. Set SW3 of the Test Unit to TRACKING position. 9. Adjust VR104 so that the amplitude of both waveforms on the oscilloscope are equal. (a=b) 10. Set SW3 to OFF position. 11. Remove the 7P cable from TP102.

SW1: OFF SW3: TRACKING
SW2: OFF Filter: IN



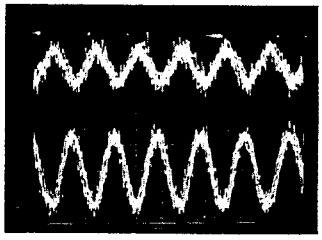
Connecting Diagram

Good waveforms

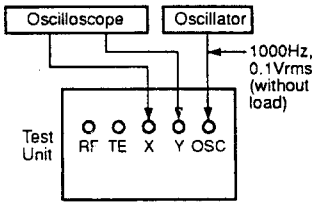
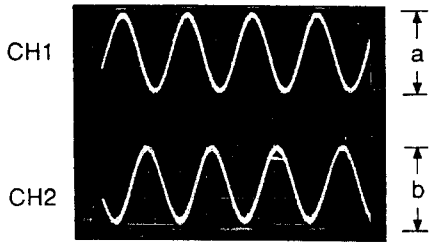
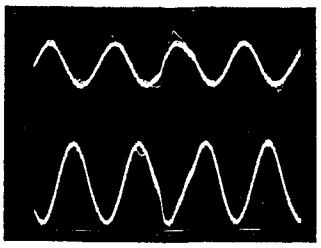


a = b

NG waveforms



Oscilloscope Setting:
CH1, CH2: 0.2 V/div, DC Mode
Time: 0.5 ms/div
Mode: Auto, ALT
Trigger: CH1

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	ADJUST-MENT	REMARKS
6	Focus Gain Adjustment	Philips Test Sample 5 or 444	Oscillator to OSC connector of Test Unit Oscilloscope to Test Unit • CH1 to X • CH2 to Y	Main P.C.B. VR103	1. Connect the 7P cable of the Test Unit to TP102 on the Main P.C.B. Ass'y. 2. Set the output of oscillator to 1000 Hz, 0.1 Vrms without connecting it to the Test Unit. 3. Note the position of the output control of the oscillator. 4. Connect the oscillator output to OSC connector of the Test Unit and set its output to 0 V. 5. Set the Filter switch of the Test Unit to IN position. 6. Play back the first track of the test disc. 7. Set the output control of the oscillator to the position noted in 3. 8. Set SW3 of the Test Unit to FOCUS position. 9. Adjust VR103 so that the amplitude of both waveforms on the oscilloscope are equal. (a=b) 10. Set SW3 to OFF position. 11. Set the Filter switch to OUT position. 12. Remove the 7P cable from TP102. 13. After adjustment, perform "EFM Signal Adjustment" in Step 3.
					SW1: OFF SW3: FOCUS SW2: OFF Filter: IN  Connecting Diagram Good waveforms  a = b NG waveforms  Oscilloscope Setting: CH1, CH2: 0.2 V/div, DC Mode Time: 0.5 ms/div Mode: Auto, ALT Trigger: CH1
7	Operation Check	Philips Test Sample 5A or 444A			Play back the following test programs on the test disc (Philips Test Sample 5A or 444A) and make sure that there is no noise and track-jumping. • Interruption 500 µm 6th program • Black Dot 800 µm 17th program • Simulated fingerprint 19th program

6. MECHANISM ASS'Y AND PARTS LIST

6.1. Synthesis

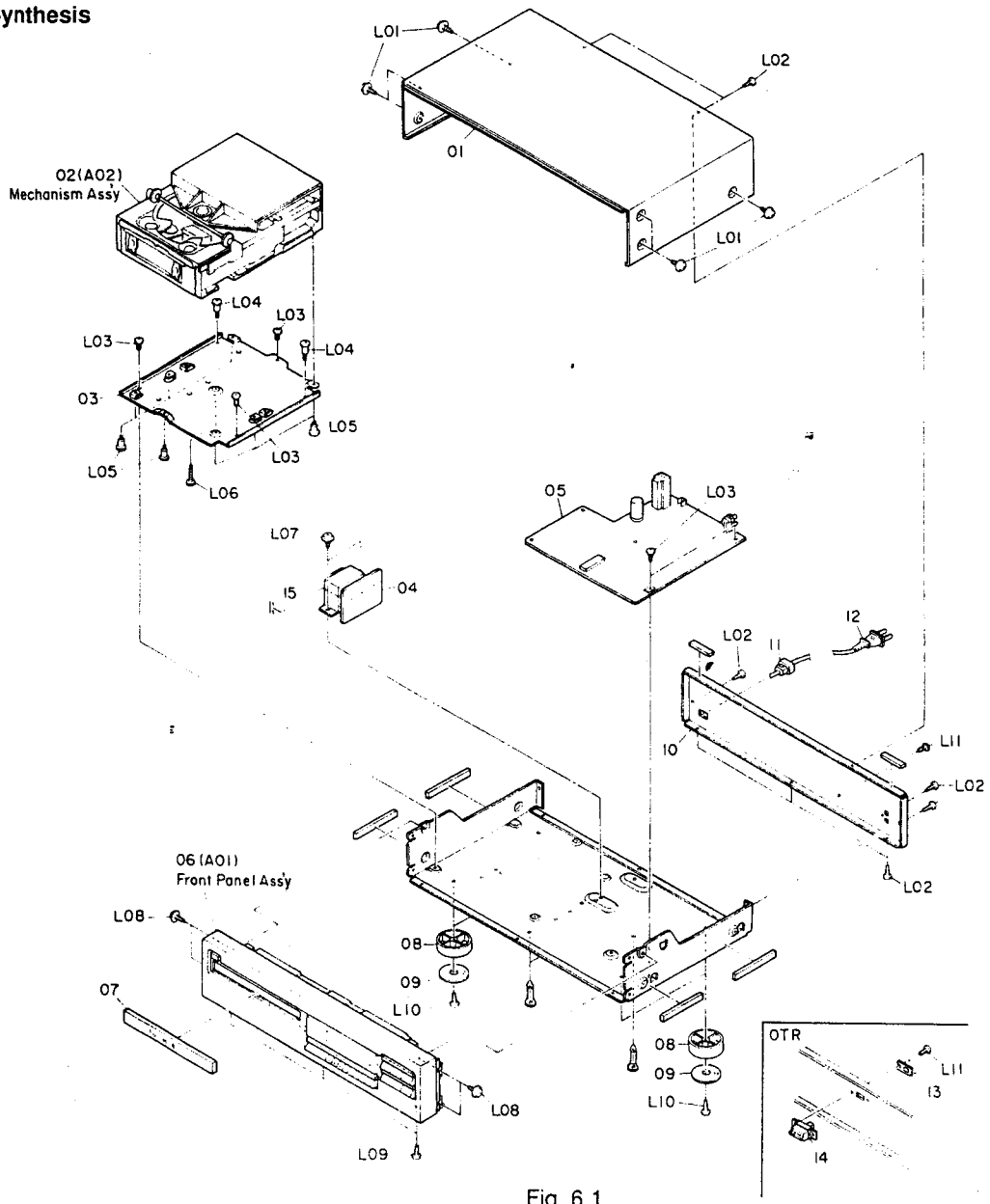


Fig. 6.1

6.1. Synthesis

Schematic Ref. No.	Part No.	Description	Q'ty
	—	**Synthesis**	
01	0H06737A	Top Cover	1
02	CG09210A	Mechanism Ass'y	1
03	0J07235D	Mecha Holder	1
04	BA09087A	Transformer P.C.B. Ass'y (USA, CAN)	1
	BA09095A	Transformer P.C.B. Ass'y (OTR)	1
	BA09108A	Transformer P.C.B. Ass'y (JPN)	1
	BA09109A	Transformer P.C.B. Ass'y (EP)	1
	BA09113A	Transformer P.C.B. Ass'y (UK)	1
	BA09117A	Transformer P.C.B. Ass'y (AUS)	1
05	BA09080A	Main P.C.B. Ass'y	1
06	—	Front Panel Ass'y	1
07	HA06850A	Tray Panel Ass'y	1
08	0J07247B	Leg	4
09	0J07283A	Leg Cushion	4
10	0H06735A	Rear Panel (Except OTR)	1
	0H06736A	Rear Panel (OTR)	1
11	0B90280A	Cord Bushing	1
12	0B05241A	Power Cord (AUS)	1
	0B08093U	Power Cord (EP)	1
	0B08348A	Power Cord (UK)	1
	0B80336A	Power Cord KP-235 (OTR, JPN)	1
	0B90205A	Power Cord (USA, CAN)	1
13	0H06746A	V. Lock Plate-C (OTR)	1
14	0B07092U	Voltage Selector (OTR)	1
15	0B90376A	Fuse 2A/125V (GGS2) (USA, CAN, OTR, JPN)	1
	0B90382A	Fuse T1.25A/250V E1R25CT (EP, UK, AUS)	1
L01	0E03592A	BT4x6 + Binding Washer-Faced (Black Chromate)	
L02	0E00921A	BT3x8 + Binding (Black Chromate)	
L03	0E00800A	ST3x6 + Binding	
L04	0E03803A	BT3x7 + Binding	
L05	0E03805A	PT3x9.5 + Binding	
L06	0E03806A	PT3x12 + Binding	
L07	0E03664A	ST4x8 + Tapping	
L08	0E03634A	BT3x6 + Binding Washer-Faced	
L09	0E00860A	BT3x6 + Binding (Black Chromate)	
L10	0E03217A	BT4x8 + Binding (Black Chromate)	
L11	0E00985A	M3x6 + Binding	

6.2. Front Panel Ass'y (A01)

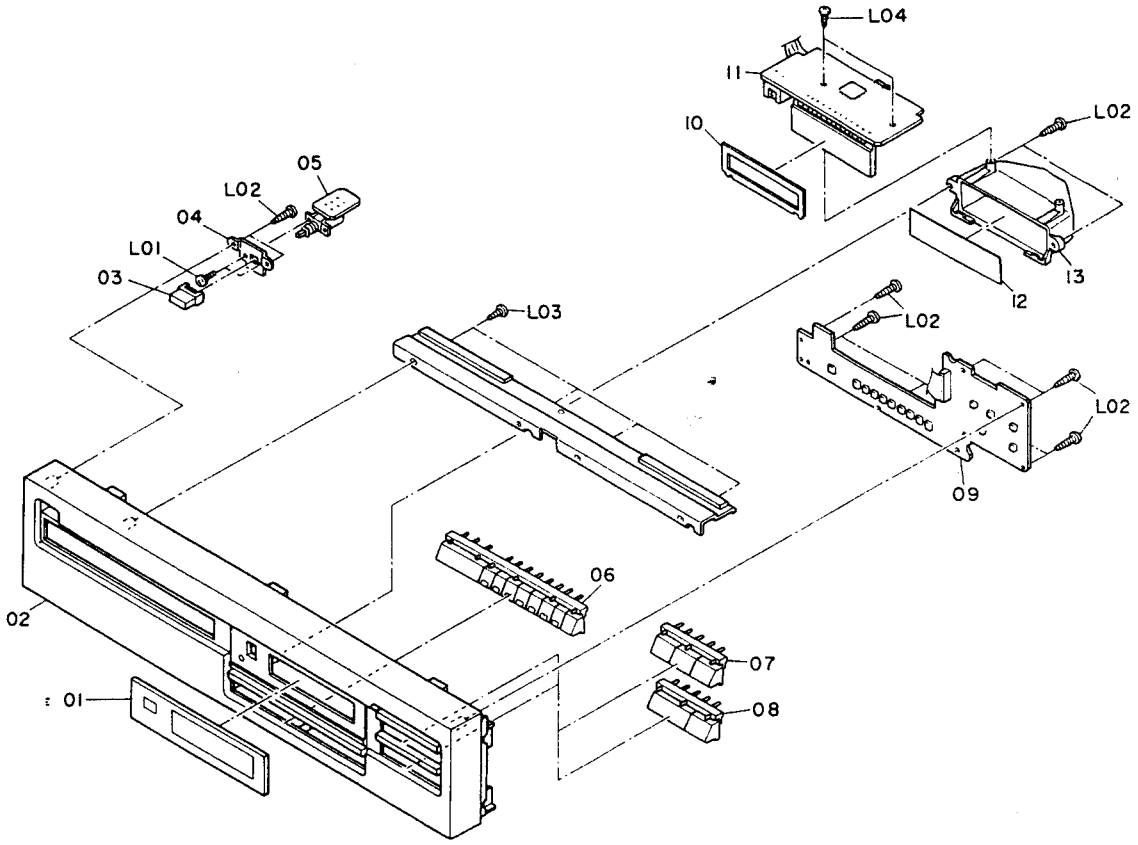
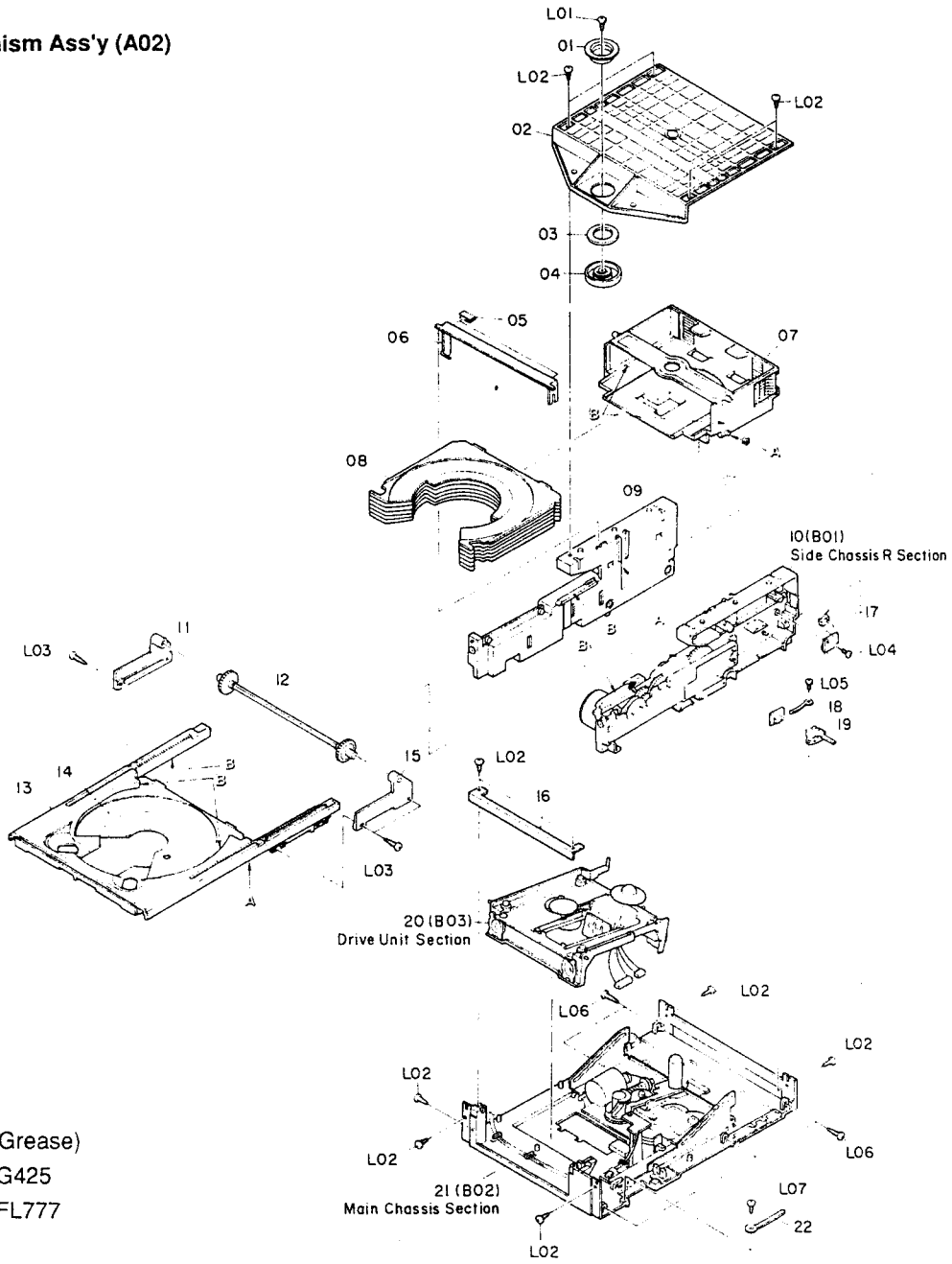


Fig. 6.2

6.2. Front Panel Ass'y

Schematic Ref. No.	Part No.	Description	Q'ty
A01	—	**Front Panel Ass'y**	1
01	0H06723B	Window	1
02	0H06718A	Front Panel	1
03	0H06724A	Power Knob	1
04	0J07245B	Power Switch Holder	1
05	BA09083A	Power Switch P.C.B. Ass'y	1
06	0H06719A	Control Knob 9	1
07	0H06720A	Control Knob 3	1
08	0H06721A	Control Knob 2	1
09	BA09082A	Key P.C.B. Ass'y	1
10	0J07246C	LCD Mask	1
11	BA09081A	Display P.C.B. Ass'y	1
12	0J07242B	LCD Sheet	1
13	0J07240A	LCD Holder	1
L01	0E00696A	M2x5 + Pan	
L02	0E03769A	PT2.6x8 + Binding	
L03	0E03813A	PT2.6x6 + Binding	
L04	0E03638A	PT2x6 + Binding	

6.3. Mechanism Ass'y (A02)



Lubricant (Grease)
Ⓐ: FLOIL G425
Ⓑ: FLOIL FL777

Fig. 6.3

6.3. Mechanism Ass'y

Schematic Ref. No.	Part No.	Description	Q'ty
A02	**CG09210A**	**Mechanism Ass'y**	1
01	2C00014A	Clamper HI	1
02	2C00094A	Top Cover	1
03	2C00016A	Magnet 17x27x5	1
04	2C00015A	Clamper LO	1
05	2C00101A	A Arm Cusion	1
06	2C00071A	Assist Arm	1
07	CB00215A	Stocker Ass'y	1
08	2C00012A	Carriage	6
09	2C00090A	Side Chassis L	1
10	—	Side Chassis R Section	1
11	2C00098A	Tray Holder L	1
12	CB00230A	Timing Ass'y	1
13	CB00214A	Tray Ass'y	1
14	2C00013A	Carriage S	1

Schematic Ref. No.	Part No.	Description	Q'ty
15	2C00097A	Tray Holder R	1
16	2C00086A	Mecha B Stopper	1
17	2B70009A	Store Switch MSS-10L2-1	1
18	2C00107A	Wire Clamper 3B40	1
19	2B70007A	Eject /T-Close Switch SSS-13	1
20	—	Drive Unit Section	1
21	—	Main Chassis Section	1
22	2C00106A	Wire Clamper 3A60	1
L01	0E03610A	BT2.6x6 + Binding (Black Chromate)	1
L02	0E00825A	BT2.6x8 + Binding (Black Chromate)	
L03	2E00005A	M2.6x12 + Binding	
L04	0E00961A	BT2x5 + Binding	
L05	0E03442A	ST2.6x5 + Pan	
L06	0E03612A	BT2.6x10 + Binding (Black Chromate)	
L07	0E00873A	BT2.6x5 + Binding	

6.4. Side Chassis R Section (B01)

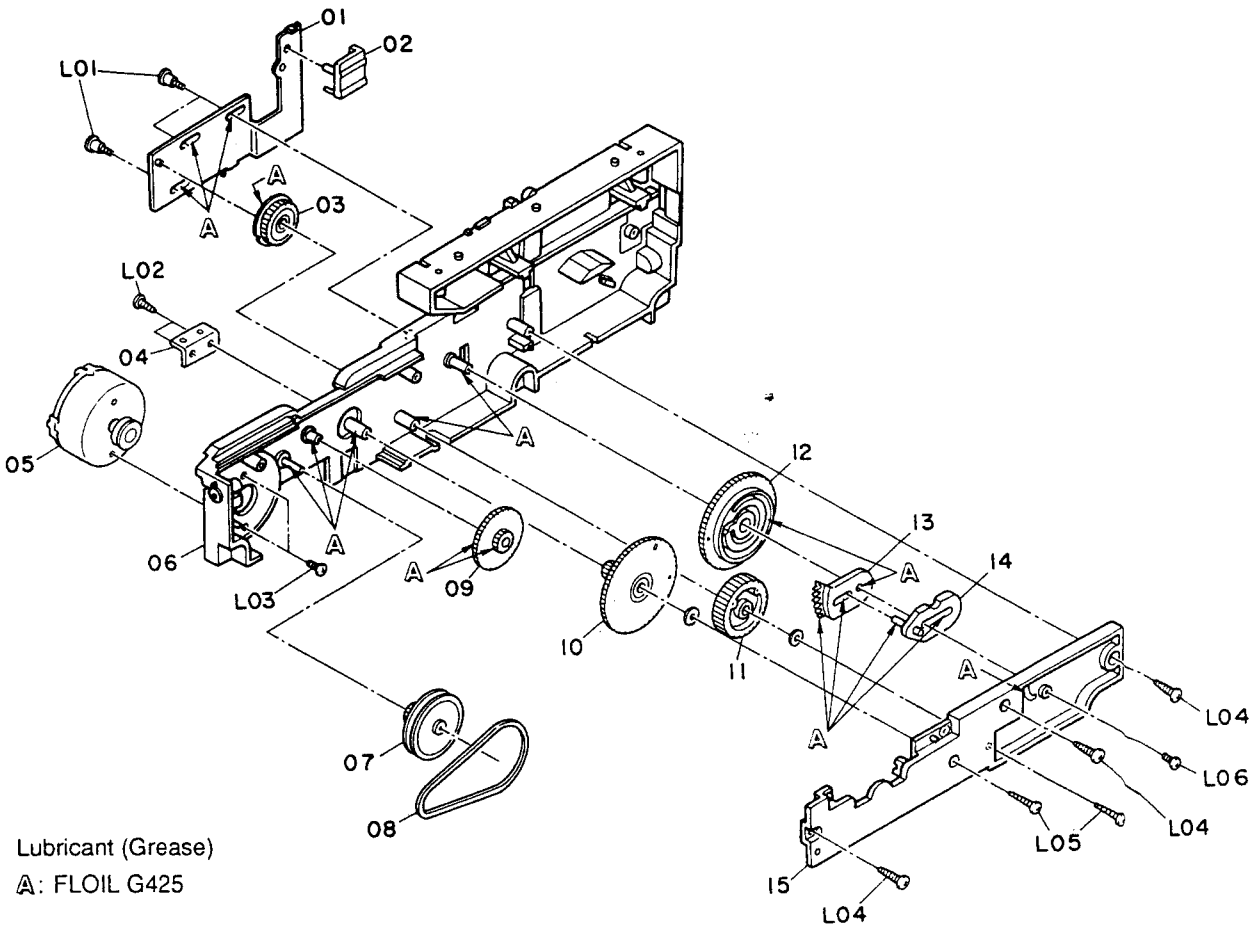
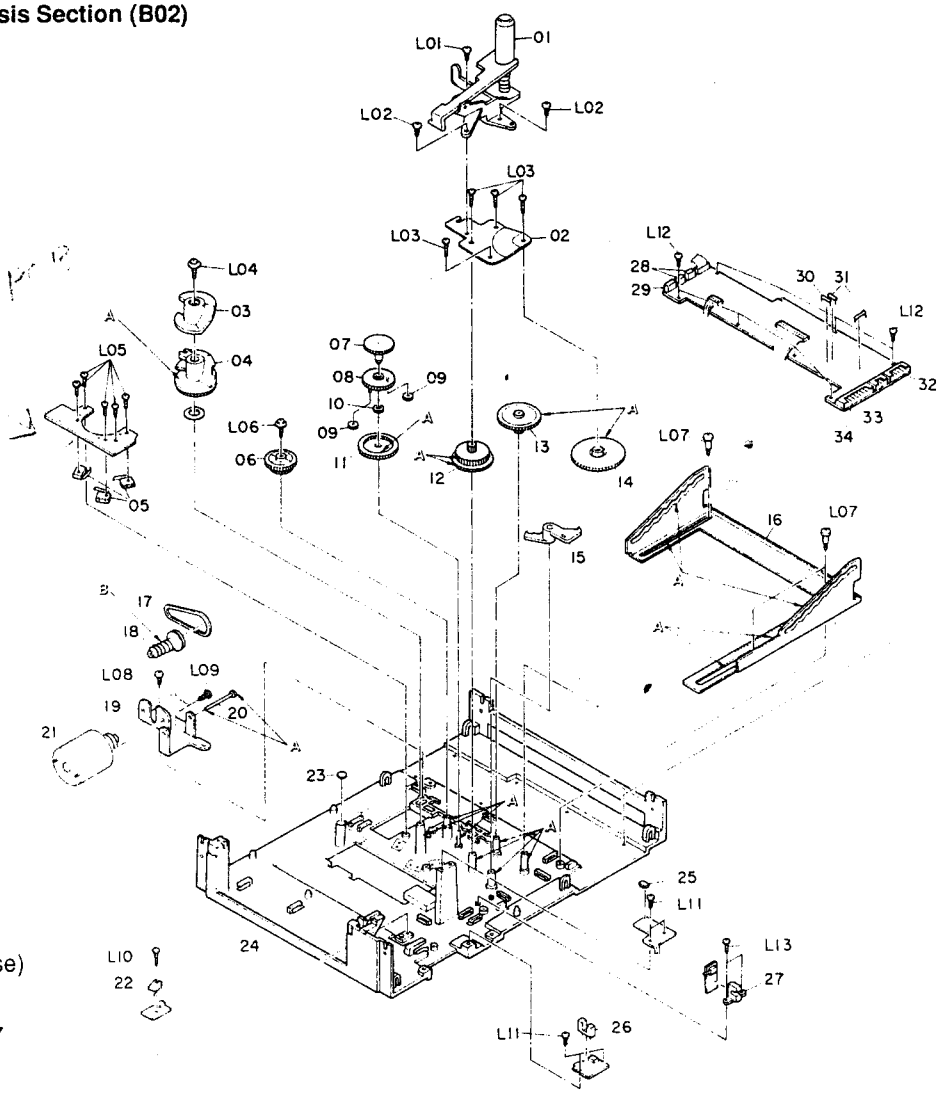


Fig. 6.4

6.4. Side Chassis R Section

Schematic Ref. No.	Part No.	Description	Q'ty
B01	—	**Side Chassis R Section**	**1**
01	CB00223A	Change Plate Ass'y	1
02	2C00072A	Carriage Openner	1
03	2C00039A	Change Gear	1
04	2C00093A	SW-Bracket	1
05	CB00216A	Loading Motor Ass'y	1
06	CB00222A	Side Chassis R Sub Ass'y	1
07	2C00044A	S-P-Gear	1
08	2C00017A	Belt-C-S	1
09	2C00041A	Side Idler	1
10	2C00054A	S-F-Gear	1
11	2C00042A	S-I-Gear	1
12	2C00043A	S-M-Gear	1
13	2C00045A	Tray Stopper	1
14	CB00225A	Tray Arm Ass'y	1
15	2C00040A	Gear Holder	1
L01	2E00002A	BT2.0x1.4x5.9	
L02	0E03610A	BT2.6x6 + Binding (Black Chromate)	
L03	0E00945A	M2.6x4 + Binding (Black Chromate)	
L04	0E00825A	BT2.6x8 + Binding (Black Chromate)	
L05	0E03756A	BT2x10 + Binding (Black Chromate)	
L06	2E00013A	M2x4 + Binding (Black Chromate)	

6.5. Main Chassis Section (B02)



Lubricant (Grease)
Ⓐ: FLOIL G425
Ⓑ: FLOIL FL777

Fig. 6.5

6.5. Main Chassis Section

Schematic Ref. No.	Part No.	Description	Q'ty
B02	—	**Main Chassis Section**	1
01	CB00224A	Disc Lock Arm Ass'y	1
02	2C00081A	Gear Plate	1
03	2C00085A	ME UD Cam Top	1
04	2C00084A	Mecha UD Cam	1
05	2B70008A	Cam Switch MSS-10R2-16	3
06	2C00082A	ID-ST-Gear	1
07	2C00074A	D1-ST-Gear	1
08	CB00226A	D2-ST-Gear Ass'y	1
09	2C00075A	D3-ST-Gear	2
10	2C00076A	D4-ST-Gear	1
11	2C00077A	D5-ST-Gear	1
12	2C00083A	Lock Idler	1
13	2C00079A	D7-ST-Gear	1
14	2C00078A	D6-ST-Gear	1
15	2C00073A	Change Arm	1
16	2C00091A	Stocker Cam	1
17	2C00018A	Belt-T-C	1
18	2C00092A	ST-Worm-Gear	1
19	2C00088A	Motor Bracket	1
20	2C00100A	Worm Shaft	1
21	CB00213A	Stocker Motor Ass'y	1
22	2B70012A	Home Position MSS-10R2-17	1
23	2C00099A	Mecha Cushion	2
24	CB00221A	Main Chassis Ass'y	1
25	2B10019A	Photo Reflector GP2S40	1
26	2B10021A	Photo Interrupter GP1S52V	1

Schematic Ref. No.	Part No.	Description	Q'ty
27	2B10020A	Photo Interrupter GS1S51V	1
28	0B81459A	B2B-PH-K-S	2
29	0B81460A	B3B-PH-K-S	1
30	0B09665A	RK 270 1/ 6WJ	1
31	0B09663A	RK 330 1/6W J	2
32	0B81470A	S6B-PH-K-S	1
33	0B81468A	S4B-PH-K-S	1
34	0B84475A	S12B-PH-K-S	1
L01	0E00869A	BT2.6x4 + Binding	
L02	0E00945A	M2.6x4 + Binding (Black Chromate)	
L03	0E00969A	BT2x8 + Binding	
L04	2E00010A	BT3x10 + Binding Washer-Faced	
L05	2E00008A	BT1.7x5.5 + Binding	
L06	2E00009A	BT2x8 + Binding Washer-Faced	
L07	2E00001A	BT2.6x1.4x7.4	
L08	0E00873A	BT2.6x5 + Binding	
L09	0E00501A	M3x3 + Pan	
L10	2E00007A	BT1.7x8 + Binding	
L11	0E00961A	BT2x5 + Binding	
L12	2E00006A	BT1.7x4 + Binding	
L13	0E00869A	BT2.6x4 + Binding	
—	2B80006A	Wire CNW-W6P	1
—	2B80007A	Wire CNW-2P175	1
—	2B80008A	Wire CNW-2P330	1
—	2B80009A	Wire CNW-W4P	1
—	2B80010A	Wire CNW-W2P50	1
—	2B80011A	Wire CNW-W11P	1
—	2B80012A	Wire CNW-3P	1

6.6. Drive Unit Section (B03)

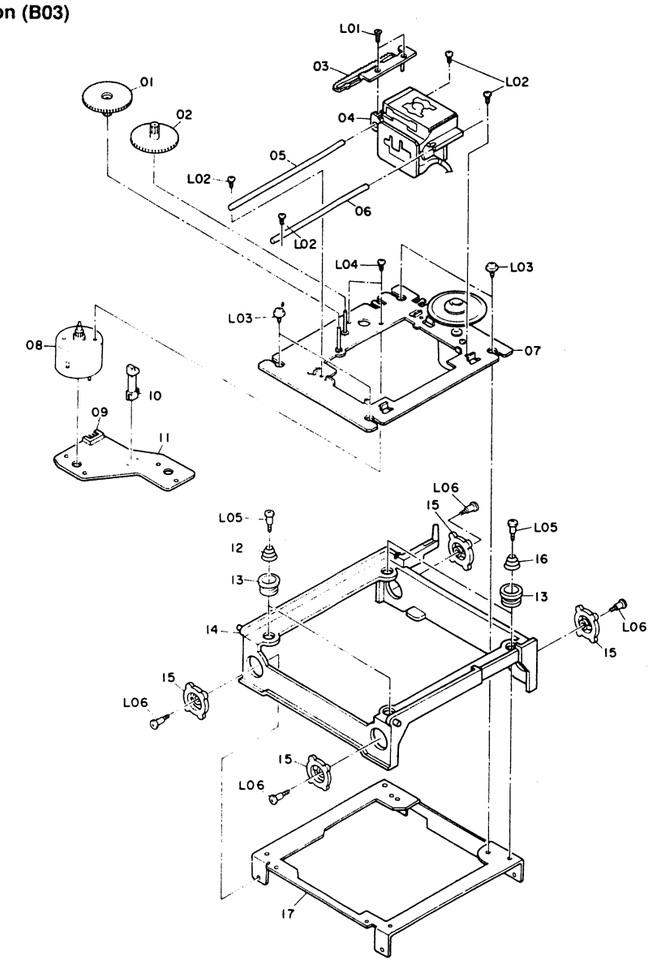


Fig. 6.6

6.6. Drive Unit Section

Schematic Ref. No.	Part No.	Description	Q'ty
B03	—	**Drive Unit Section**	1
01	2C00023A	Gear Power	1
02	2C00022A	Gear Middle	1
03	2C00105A	Plate Rack	1
04	2C00019A	Pick-up SF91NC	1
05	2C00021A	Guide Bar B	1
06	2C00020A	Guide Bar A	1
07	CB00217A	Disc Motor Ass'y	1
08	CB00218A	Feed Motor Ass'y	1
09	0B81470A	6P S-Post S6B-PH	1
10	2B70011A	Leaf SW BSW-333A	1
11	2B60002A	Motor P.C.B. 90V1-M	1
12	2C00027A	Mecha SP B	2
13	2C00025A	Mecha Limit	4
14	CB00227A	Mecha Base Ass'y	1
15	2C00024A	Mecha Sus	4
16	2C00026A	Mecha SP A	2
17	2C00087A	Mecha Chassis	1
L01	0E03648A	M2x5 + Countersunk	
L02	2E00011A	ST2.6x6 + Binding	
L03	2E00012A	ST2.6x6 + Cup Screw	
L04	0E03439A	M2x2.5 + Pan (Black Chromate)	
L05	2E00004A	ST2.0x10x15	
L06	2E00003A	ST2.0x3.0x8.0	

7. MOUNTING DIAGRAMS AND PARTS LIST

7.1. Main P.C.B. Ass'y

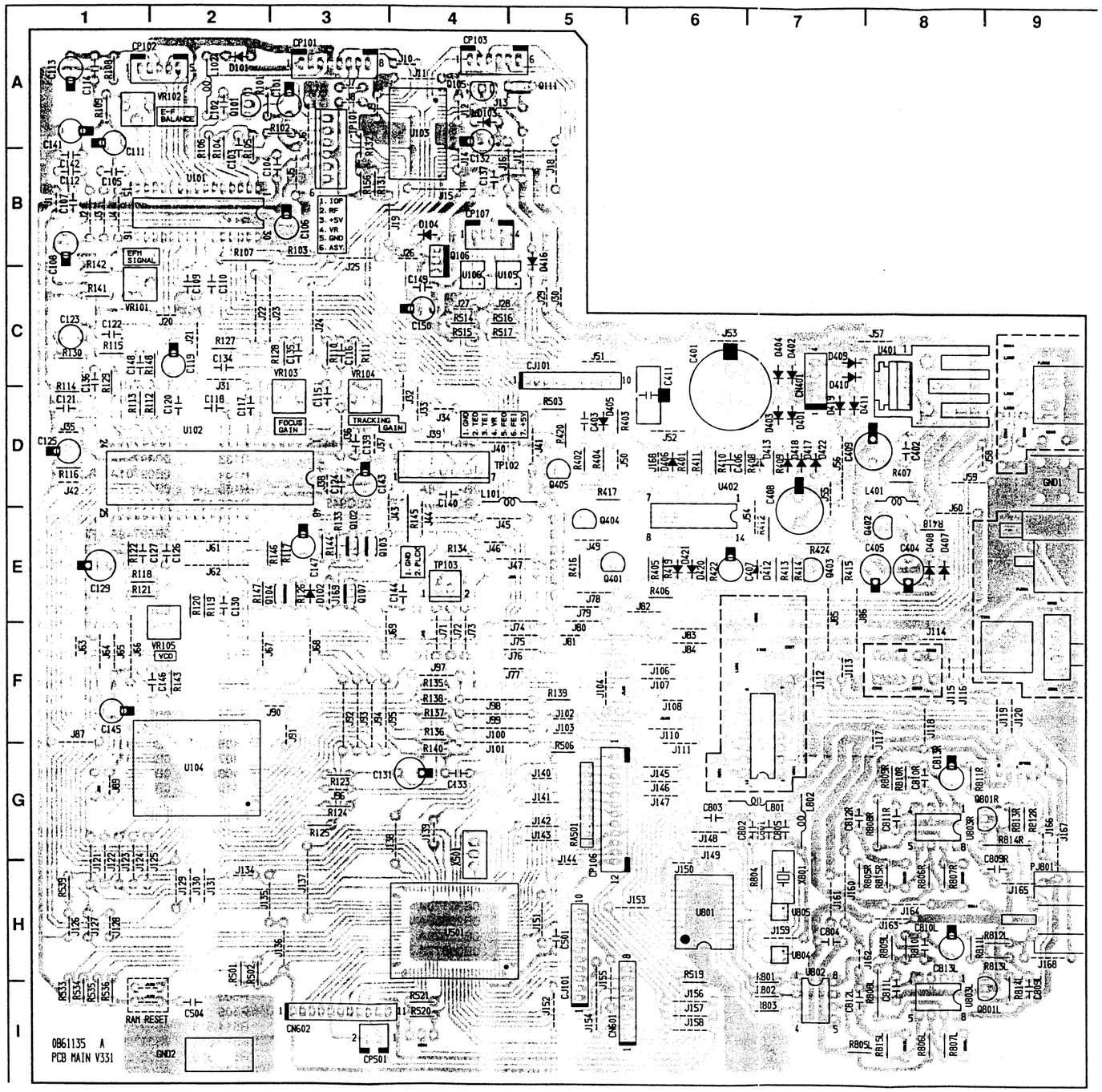


Fig. 7.1

•Semiconductor Location

Ref. No.	Location
U101	B-2
U102	D-2
U103	A-4
U104	G-2
U105	C-4
U106	C-4
U401	C-8
U402	E-6
U501	H-4
U801	H-6
U802	I-7
U803L	I-8
U803R	G-8
U804	H-7
U805	H-7
Q101	A-2
Q102	E-3
Q103	E-3
Q104	E-3
Q105	A-4
Q106	B-4
Q107	E-3
Q111	A-5
Q401	E-5
Q402	E-8
Q403	E-7
Q404	E-5
Q405	D-5
Q801L	I-9
Q801R	G-9
D101	A-2
D102	E-3
D103	A-4
D104	B-4
D401	D-7
D402	C-7
D403	D-7
D404	C-7
D405	D-5
D406	D-6
D407	E-8
D408	E-8
D409	C-7
D410	C-7
D411	D-7
D412	E-7
D413	D-7
D416	B-5
D417	D-7
D418	D-7
D419	D-7
D420	E-6
D421	E-6
D422	D-7

7.2. Transformer P.C.B. Ass'y

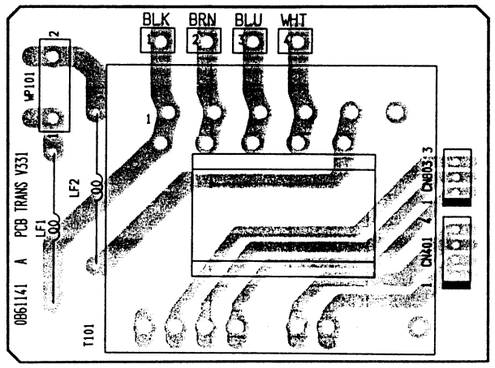


Fig. 7.2

7.3. Power Switch P.C.B. Ass'y

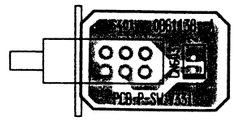


Fig. 7.3

7.4. Key P.C.B. Ass'y

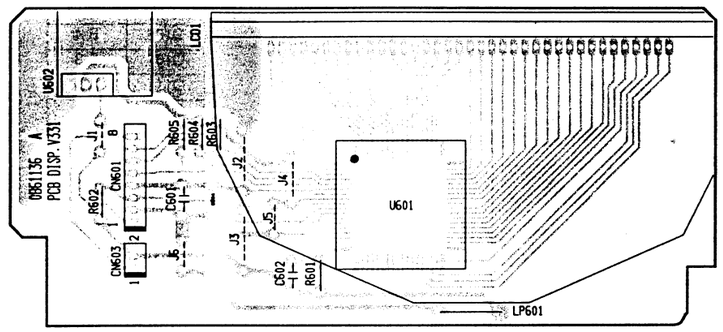


Fig. 7.4

7.5. Display P.C.B. Ass'y

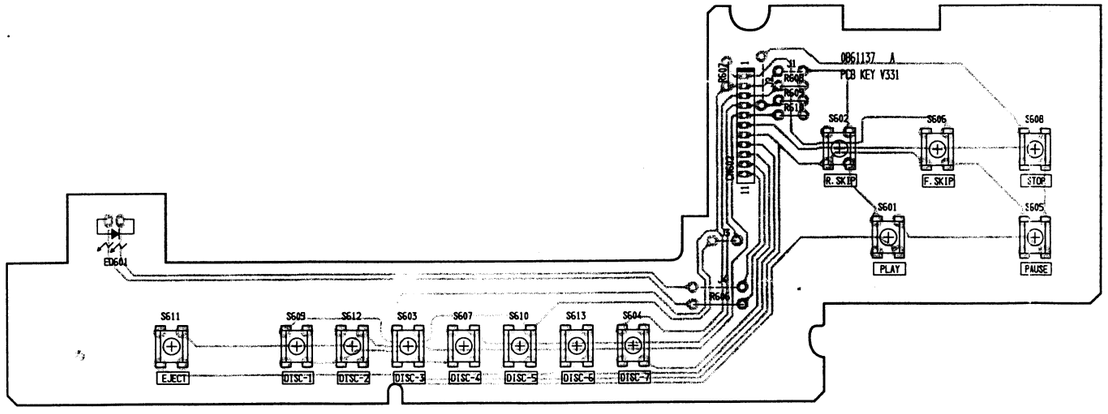


Fig. 7.5

NOTES: 1. Abbreviations
TR – Transistor, SID – Silicon Diode, ZD – Zener Diode, Varicap – Variable Capacitance Diode
RK – Carbon Resistor, RM – Metal Film Resistor, RF – Fail Safe Type Resistor,
RC – Cement Resistor, CE – Electrolytic Capacitor, CML – Mylar Capacitor,
CC – Ceramic Capacitor, CPP – PP Capacitor, CMM – Metalized Mylar Capacitor,
CSP – Polystyrene Capacitor, C – Mica Capacitor, CT – Tantalum Capacitor
2. Description of capacitor: 10 16V = 10µ 16V
3. Parts marked with * show chip parts.

7.1. Main P.C.B. Ass'y

Schematic Ref. No.	Part No.	Description			Schematic Ref. No.	Part No.	Description			
	BA09080A	**Main P.C.B. Ass'y**			R115	0B09719A	RK	56K	1/6W J
					R116	0B09725A	RK	100K	1/6W J
U101	0B11818A	IC	CXA1081S		R117	0B09713A	RK	33K	1/6W J
U102	0B11819A	IC	CXA1082BS		R118	0B25291A	RM	10K	1/4W F
U103	0B10558A	IC	BA6296FP		R119	0B25666A	RM	3.6K	1/4W F
U104	0B11946A	IC	CXD1167Q		R120	0B09734A	RK	240K	1/6W J
U105,106	0B10465A	IC	LB1638M		R121	0B09701A	RK	10K	1/6W J
U401	0B10554A	IC	PQ05RF1		R122	0B25291A	RM	10K	1/4W F
U402	0B11611A	IC	TC4584BP		R123	0B09721A	RK	68K	1/6W J
U501	0B10556A	IC	µPD75517-230		R124	0B09701A	RK	10K	1/6W J
U801	0B10550A	IC	LC78840M		R125,126	0B09725A	RK	100K	1/6W J
U802	0B10552A	IC	TDA1311		R127	0B09737A	RK	330K	1/6W J
U803L,R	0B06124B	IC	NJM4558D		R128	0B09729A	RK	150K	1/6W J
U804,805	0B10564A	IC	TC7SU04F		R129	0B09720A	RK	62K	1/6W J
Q101	0B10097A	TR	2SA952		R130	0B09704A	RK	13K	1/6W J
Q102	0B10068A	TR	DTC114ES		R131	0B09710A	RK	24K	1/6W J
Q103,104	0B10368A	TR	DTC144TS		R132	0B09701A	RK	10K	1/6W J
Q105,106	0B10563A	TR	2SB1482		R133	0B09725A	RK	100K	1/6W J
Q107	0B10368A	TR	DTC144TS		R134	0B09701A	RK	10K	1/6W J
Q111	0B10058A	TR	DTA114ES		R135	0B09677A	RK	1K	1/6W J
Q401	0B06100A	TR	2SC945		R136,137	0B09653A	RK	100	1/6W J
Q402	0B06322A	TR	2SC2002		R138,139	0B09653A	RK	100	1/6W J
Q403	0B10094A	TR	2SA1015 (Y)		R140	0B09749A	RK	1M	1/6W J
Q404,405	0B06100A	TR	2SC945		R141,142	0B09705A	RK	15K	1/6W J
Q801L,R	0B06299A	TR	2SC2878		R143	0B09701A	RK	10K	1/6W J
D101,102	0B06398A	SID	1SS176		R144	0B09713A	RK	33K	1/6W J
D103,104	0B06398A	SID	1SS176		R145	0B09701A	RK	10K	1/6W J
D401,402	0B12693A	SID	S5688B		R146,147	0B09713A	RK	33K	1/6W J
D403,404	0B12693A	SID	S5688B		R148	0B09731A	RK	180K	1/6W J
D405,406	0B06398A	SID	1SS176		R156	0B09701A	RK	10K	1/6W J
D407,408	0B06398A	SID	1SS176		R157	0B09697A	RK	6.8K	1/6W J
D409,410	0B06398A	SID	1SS176		R401	0B09749A	RK	1M	1/6W J
D411	0B12693A	SID	S5688B		R402	0B09701A	RK	10K	1/6W J
D412,413	0B06398A	SID	1SS176		R403	0B09749A	RK	1M	1/6W J
D416,417	0B06398A	SID	1SS176		R404	0B09701A	RK	10K	1/6W J
D418	0B06398A	SID	1SS176		R405	0B09717A	RK	47K	1/6W J
D419	0B12693A	SID	S5688B		R406	0B09693A	RK	4.7K	1/6W J
D420,421	0B06398A	SID	1SS176		R407	0B09637A	RK	22	1/6W J
D422	0B06398A	SID	1SS176		R408,409	0B09701A	RK	10K	1/6W J
L101,102	0B51369A	Inductor 10mH			R410	0B09749A	RK	1M	1/6W J
L401	0B51132A	Inductor 330uH			R411	0B09701A	RK	10K	1/6W J
L801,802	0B51369A	Inductor 10mH			R412	0B09677A	RK	1K	1/6W J
X501	0B92033A	Clystal 4.0MHz			R413	0B09718A	RK	51K	1/6W J
X801	0B92039A	X'tal 16.9344MHz			R414	0B09701A	RK	10K	1/6W J
VR101	0B32145A	Semi VR 10K (B)			R415	0B09749A	RK	1M	1/6W J
VR102,103	0B32146A	Semi VR 20K (B)			R416	0B09693A	RK	4.7K	1/6W J
VR104	0B32146A	Semi VR 20K (B)			R417	0B09717A	RK	47K	1/6W J
VR105	0B30170A	Semi VR 1K			R418	0B09685A	RK	2.2K	1/6W J
RA501	0B20656A	R Arey 47Kx9			R419	0B09717A	RK	47K	1/6W J
R101	0B09629A	RK	10	1/6W J	R420	0B09701A	RK	10K	1/6W J
R102	0B09677A	RK	1K	1/6W J	R422	0B09717A	RK	47K	1/6W J
R103	0B09701A	RK	10K	1/6W J	R424	0B09653A	RK	100	1/6W J
R104	0B09699A	RK	8.2K	1/6W J	R501,502	0B09701A	RK	10K	1/6W J
R105	0B09685A	RK	2.2K	1/6W J	R503	0B09701A	RK	10K	1/6W J
R106	0B09699A	RK	8.2K	1/6W J	R506	0B09713A	RK	33K	1/6W J
R107	0B09725A	RK	100K	1/6W J	R514,515	0B09725A	RK	100K	1/6W J
R108	0B09677A	RK	1K	1/6W J	R516,517	0B09725A	RK	100K	1/6W J
R109	0B09709A	RK	22K	1/6W J	R519,520	0B09725A	RK	100K	1/6W J
R110,111	0B09701A	RK	10K	1/6W J	R521	0B09725A	RK	100K	1/6W J
R112	0B09731A	RK	180K	1/6W J	R533,534	0B09725A	RK	100K	1/6W J
R113	0B09735A	RK	270K	1/6W J	R535,536	0B09725A	RK	100K	1/6W J
R114	0B09742A	RK	510K	1/6W J	R539	0B09725A	RK	100K	1/6W J

Schematic Ref. No.	Part No.	Description
R540,541	0B09701A	RK 10K 1/6W J
R801,802	0B09661A	RK 220 1/6W J
R803	0B09661A	RK 220 1/6W J
R804	0B09749A	RK 1M 1/6W J
R805L,R	0B09701A	RK 10K 1/6W J
R806L,R	0B09722A	RK 75K 1/6W J
R807L,R	0B25404A	RM 150K 1/4W F
R808L,R	0B09697A	RK 6.8K 1/6W J
R809L,R	0B09698A	RK 7.5K 1/6W J
R810L,R	0B09697A	RK 6.8K 1/6W J
R811L,R	0B09671A	RK 560 1/6W J
R812L,R	0B09653A	RK 100 1/6W J
R813L,R	0B09725A	RK 100K 1/6W J
R814L,R	0B09691A	RK 3.9K 1/6W J
R815L,R	0B25389A	RM 105K 1/4W F
R816L,R	0B09747A	RK 820K 1/6W J
C101	0B40063A	CE 100 10V
C102	0B41944A	CC 1000P 50V K
C103	0B41521A	CML 3300P 50V J
C104	0B41708A	CC 22P 50V J
C105	0B41294A	CML 0.047 50V J
C106	0B40076A	CE 33 16V
C107	0B47137A	CC 0.047 25V Z
C108	0B40111A	CE 0.47 50V
C109	0B41522A	CML 4700P 50V J
C110	0B41525A	CML 0.015 50V J
C111	0B40076A	CE 33 16V
C112	0B47133A	CC 0.01 50V Z
C113	0B40114A	CE 3.3 50V
C114	0B47137A	CC 0.047 25V Z
C115,116	0B41278A	CML 2200P 50V J
C117	0B41298A	CML 0.1 50V J
C118	0B41294A	CML 0.047 50V J
C119	0B40115A	CE 4.7 50V
C120	0B41298A	CML 0.1 50V J
C121	0B41823A	CML 0.01 50V J
C122	0B41298A	CML 0.1 50V J
C123	0B09163A	CE 10 16V (BP)
C124	0B47117A	CC 0.1 50V Z
C125	0B40076A	CE 33 16V
C126	0B41298A	CML 0.1 50V J
C127	0B41974A	CC 100P 50V J
C129	0B40078A	CE 100 16V
C130	0B41274A	CML 1000P 50V J
C131	0B40111A	CE 0.47 50V
C132	0B40063A	CE 100 10V
C133	0B41823A	CML 0.01 50V J
C134	0B41283A	CML 5600P 50V J
C135	0B41885A	CC 220P 50V J
C136	0B41823A	CML 0.01 50V J
C137	0B47117A	CC 0.1 50V Z
C139,140	0B47133A	CC 0.01 50V Z
C141	0B40076A	CE 33 16V
C142	0B47133A	CC 0.01 50V Z
C143	0B40074A	CE 10 16V
C144	0B41526A	CML 0.018 50V J
C145	0B40078A	CE 100 16V
C146	0B47117A	CC 0.1 50V Z
C147	0B40115A	CE 4.7 50V
C148	0B41525A	CML 0.015 50V J
C149	0B47117A	CC 0.1 50V Z
C150	0B40063A	CE 100 10V
C155	0B41885A	CC 220P 50V J
C401	0B40085A	CE 4700 16V
C402	0B41298A	CML 0.1 50V J
C403	0B41300A	CML 0.15 50V J
C404,405	0B40078A	CE 100 16V
C406	0B41823A	CML 0.01 50V J
C407	0B40074A	CE 10 16V
C408	0B40082A	CE 1000 16V
C409	0B40052A	CE 470 6.3V
C411	0B42054A	Gold Cap 0.22F 5.5V
C501	0B47117A	CC 0.1 50V Z
C504	0B47133A	CC 0.01 50V Z
C505,506	0B47133A	CC 0.01 50V Z

Schematic Ref. No.	Part No.	Description
C801,802	0B41975A	CC 10P 50V C
C803,804	0B47117A	CC 0.1 50V Z
C805	0B47117A	CC 0.1 50V Z
C809L,R	0B41298A	CML 0.1 50V J
C810L,R	0B41201A	CPP 100P 100V J
C811L,R	0B41215A	CPP 390P 100V J
C812L,R	0B41298A	CML 0.1 50V J
C813L,R	0B40077A	CE 47 16V
CN103	0B80642A	Connector Ass'y CN103
CN106	0B80643A	Connector Ass'y CN106
CN107	0B80644A	Connector Ass'y CN107
CN401	0B80634B	Connector Ass'y CN401
CN601	0B80631B	Connector Ass'y CN601
CN602	0B80632A	Connector Ass'y CN602
CJ101	0B80638B	Ribbon Cable 10P
CP101	0B81465A	8P T-Post
CP102	0B81462A	5P T-Post
CP103	0B81463A	6P T-Post
CP106	0B84087A	12P T-Post
CP107	0B81461A	4P T-Post
TP101	0B08182A	6P T-Post
TP102	0B02244A	7P T-Post
TP103	0B02233A	2P T-Post
PJ801	0B84226A	Pin Jack 2P
GND1	0B84388A	Screw Terminal
GND2	0J05898C	Earth Plate
	0B80657A	Lead Wire (1)
	0B80659A	Lead Wire (1)
	0B90019A	SK Binder SKB80 (6)
	0B90464A	Heat Sink (1)

7.2. Transformer P.C.B. Ass'y

Schematic Ref. No.	Part No.	Description
	BA09087A	**Transformer P.C.B. Ass'y (USA, CAN)**
	BA09109A	**Transformer P.C.B. Ass'y (EP)**
	BA09113A	**Trnasformer P.C.B. Ass'y (UK)**
	BA09117A	**Trnasformer P.C.B. Ass'y (AUS)**
	BA09095A	**Transformer P.C.B. Ass'y (OTR)**
	BA09108A	**Transformer P.C.B. Ass'y (JPN)**
F401	0B90376A	Fuse 2A/125V (GGS2) (USA, CAN, OTR, JPN)
	0B90382A	Fuse T1.25A/250V E1R25CT (EP, UK, AUS)
LF1,2	0B51397A	Inductor 15uH VW1
T101	0B50250A	Power Transformer (USA, CAN)
	0B50255A	Power Transformer (EP, UK, AUS)
	0B50256A	Power Transformer (OTR)
	0B50254A	Power Transformer (JPN)
WP101	0B84275A	Wrapping Terminal 2P
	0B90205A	Power Cord (USA, CAN) (1)
	0B08093U	Power Cord (EP) (1)
	0B08348A	Power Cord (UK) (1)
	0B05241A	Power Cord SAA (AUS) (1)
	0B80336A	Power Cord KP-235 (OTR, JPN) (1)
	0B07092U	Voltage Selector (OTR) (1)
	0B90019A	SK Binder SKB80 (OTR) (1)
	0B90366A	Fuse Clip (FP-217) (2)
	0M04391A	Fuse Label T1.25A (EP, UK, AUS) (1)

7.3. Power Switch P.C.B. Ass'y

Schematic Ref. No.	Part No.	Description
	BA09083A	**Power Switch P.C.B. Ass'y**
S401	0B70226A	Push Switch

7.4. Key P.C.B. Ass'y

Schematic Ref. No.	Part No.	Description
	BA09082A	**Key P.C.B. Ass'y**
R607,608	0B09717A	RK 47K 1/6W J
R609,610	0B09717A	RK 47K 1/6W J
S601,602	0B70227A	Tact Switch LCP-S
S603,604	0B70227A	Tact Switch LCP-S
S605,606	0B70227A	Tact Switch LCP-S
S607,608	0B70227A	Tact Switch LCP-S
S609,610	0B70227A	Tact Switch LCP-S
S611,612	0B70227A	Tact Switch LCP-S
S613	0B70227A	Tact Switch LCP-S

7.5. Display P.C.B. Ass'y

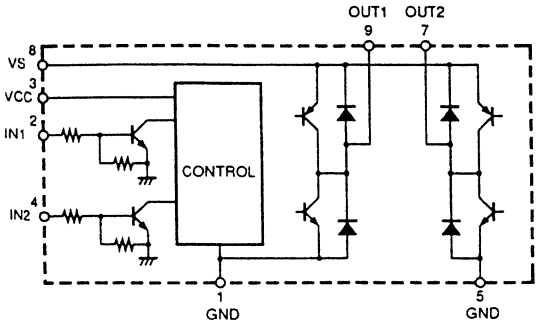
Schematic Ref. No.	Part No.	Description
	BA09081A	**Display P.C.B. Ass'y**
U601	0B11891A	IC LC7582A
U602	0B10555A	Remote Control Unit GP1U581Y
R601	0B09717A	RK 47K 1/6W J
R602,603	0B09725A	RK 100K 1/6W J
R604,605	0B09725A	RK 100K 1/6W J
C601	0B47117A	CC 0.1 50V Z
C602	0B05571A	CML 680P 50V J
LCD1	0B90642A	LCD FTD-12698AA
LP601	0B90640A	Lamp 200mA 5V
CN603	0B80633B	Connector Ass'y CN603
J4	0B80158A	Jumper Wire 7.5mm

8. IC BLOCK DIAGRAMS

U501 μPD75517-230 (Mechanism Controller)

Pin No.	Signal Name	I/O	Function
1 2	–	–	Connected to GND.
3 4	VDD	–	+5V
5	ST UP	O	Stocker motor drive signal. Stocker raises when "H".
6	ST DWN	O	Stocker motor drive signal. Stocker lowers when "H".
7	FRONT	O	Loading motor drive signal. Disc tray is ejected when "H".
8	REAR	O	Loading motor drive signal. Disc tray is loaded when "H".
9	$\overline{\text{DSP. INH}}$	O	Display inhibit signal.
10	DSP. DT	O	Serial display data.
11	$\overline{\text{DSP. CK}}$	O	Clock for display data at pin 10.
12	$\overline{\text{DSP. EN}}$	O	Latch pulse for display data at pin 10.
13	EMP	O	De-emphasis control signal. H: De-emphasis ON.
14	MUTG	O	Mute control signal.
15	REM. ACK	O	Not used.
16	NC	O	Not used.
17	K. DATA	I	Not used.
18	–	I	Connectd to GND.
19	$\overline{\text{K. CLK}}$	I	Not used.
20	–	I	Connected to GND.
21 to 24	$\overline{\text{T3}}$-$\overline{\text{T0}}$	O	Key matrix scanning signals.
25 to 28	$\overline{\text{K3}}$-$\overline{\text{K0}}$	I	Key matrix input signals.
29	MOD. SEL	I	Mode select signal. Fixed at "H".
30	$\overline{\text{RAM CLR}}$	I	RAM reset input. Can use at power ON.
31	$\overline{\text{STBY}}$	I	Not used.
32	$\overline{\text{DSP. LCD}}$	I	Fixed at "L".
33	VSS	–	GND
34 35 36	NC	O	Not used.
37	$\overline{\text{M. POFF}}$	O	Not used.
38	$\overline{\text{LDON}}$	O	Laser ON signal.
39	$\overline{\text{XLT}}$	O	Latch pulse for data at pin 41.
40	$\overline{\text{CLK}}$	O	Clock for data at pin 41.
41	DATA	O	8-bit serial data to LSIs.
42	SENSE	I	Sense signal from LSIs.

Pin No.	Signal Name	I/O	Function
43	FOK	I	Focus OK signal.
44	GFS	I	Frame sync lock signal.
45	CRCF	I	CRC (cyclic redundancy code) check result signal for subcode Q.
46	$\overline{\text{REM}}$	I	Fixed at "H".
47	–	I	Connected to GND.
48	SCOR	I	Subcode input trigger signal.
49	SG. IN	I	Remote controller input signal.
50	SUBQ	I	Subcode Q data.
51	–	I	Connected to GND.
52	$\overline{\text{SQCK}}$	O	Clock for inputting subcode Q data.
53	$\overline{\text{P. OFF}}$	I	Power OFF signal.
54	VSS	–	GND
55	–	I	Connected to GND.
56	–	O	Not used.
57	IC	–	Connected to GND.
58 59	X1 X2	–	Connected to 4MHz crystal.
60	$\overline{\text{RESET}}$	I	System reset signal.
61	–	I	Connected to GND.
62	$\overline{\text{D. DET}}$	I	Disc presence detecting input.
63	$\overline{\text{D. CNT}}$	I	Stocker position counting input.
64	$\overline{\text{CENTER}}$	I	Disc tray center detecting input.
65	$\overline{\text{T. CLOSE}}$	I	Disc tray close detecting input.
66 67 68	POS3 POS2 POS1	I	Pickup position detecting inputs.
69	$\overline{\text{INNER}}$	I	Inner switch signal. Become "L" when the laser pickup reaches the innermost position.
70	$\overline{\text{H. POS}}$	I	Stocker home position detecting input.
71	$\overline{\text{STORE}}$	I	Disc tray stock position detecting input.
72	$\overline{\text{EJECT}}$	I	Disc tray ejection detecting input.
73	–	–	Connected to GND.
74 to 80	–	I	Connected to GND.



MODE	IN1	IN2	OUT1	OUT2
FWD	H	L	H	L
REV	L	H	L	H
BRAKE	H	H	L	L
STANDBY	L	L	OFF	OFF

Fig. 8.1 Motor Driver LB1638M

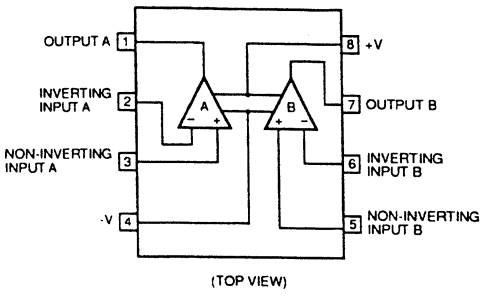


Fig. 8.2 Operational Amp. 4558D

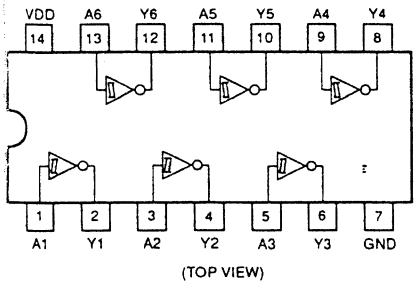


Fig. 8.3 Inverter TC4584BP

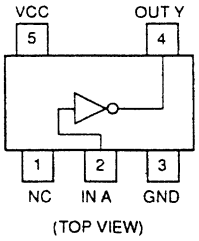


Fig. 8.4 Inverter TC7SU04F

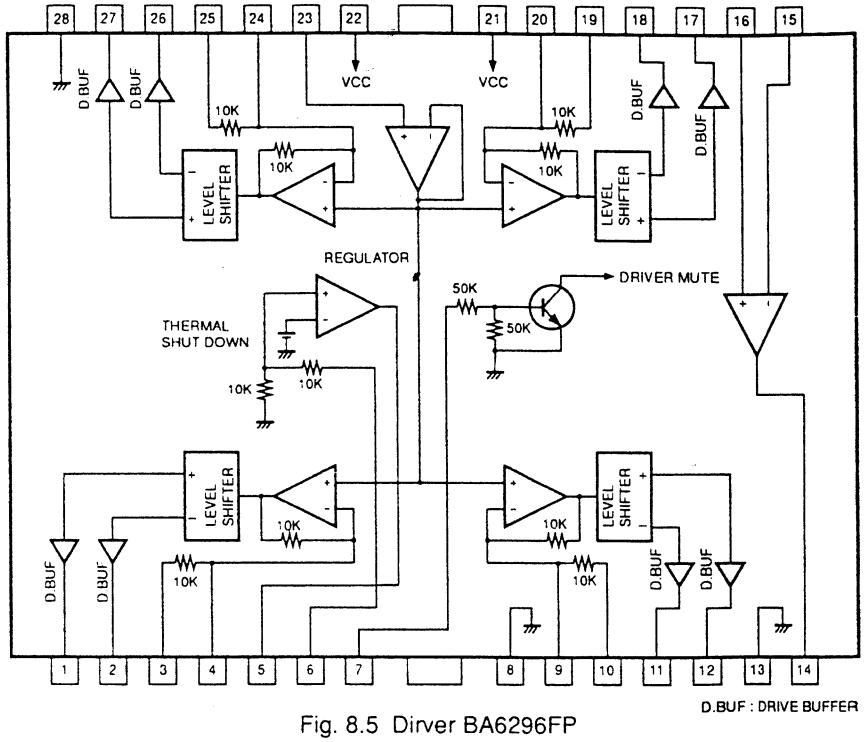


Fig. 8.5 Dirver BA6296FP

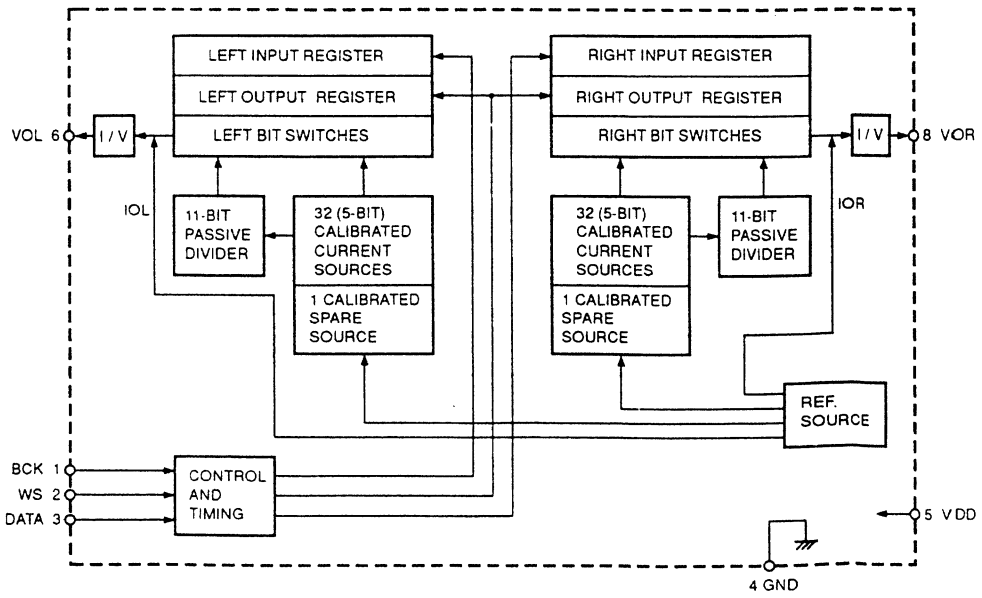


Fig. 8.6 Digital-to-Analog Converter TDA1311

U.S. DEPT

9. BLOCK DIAGRAM

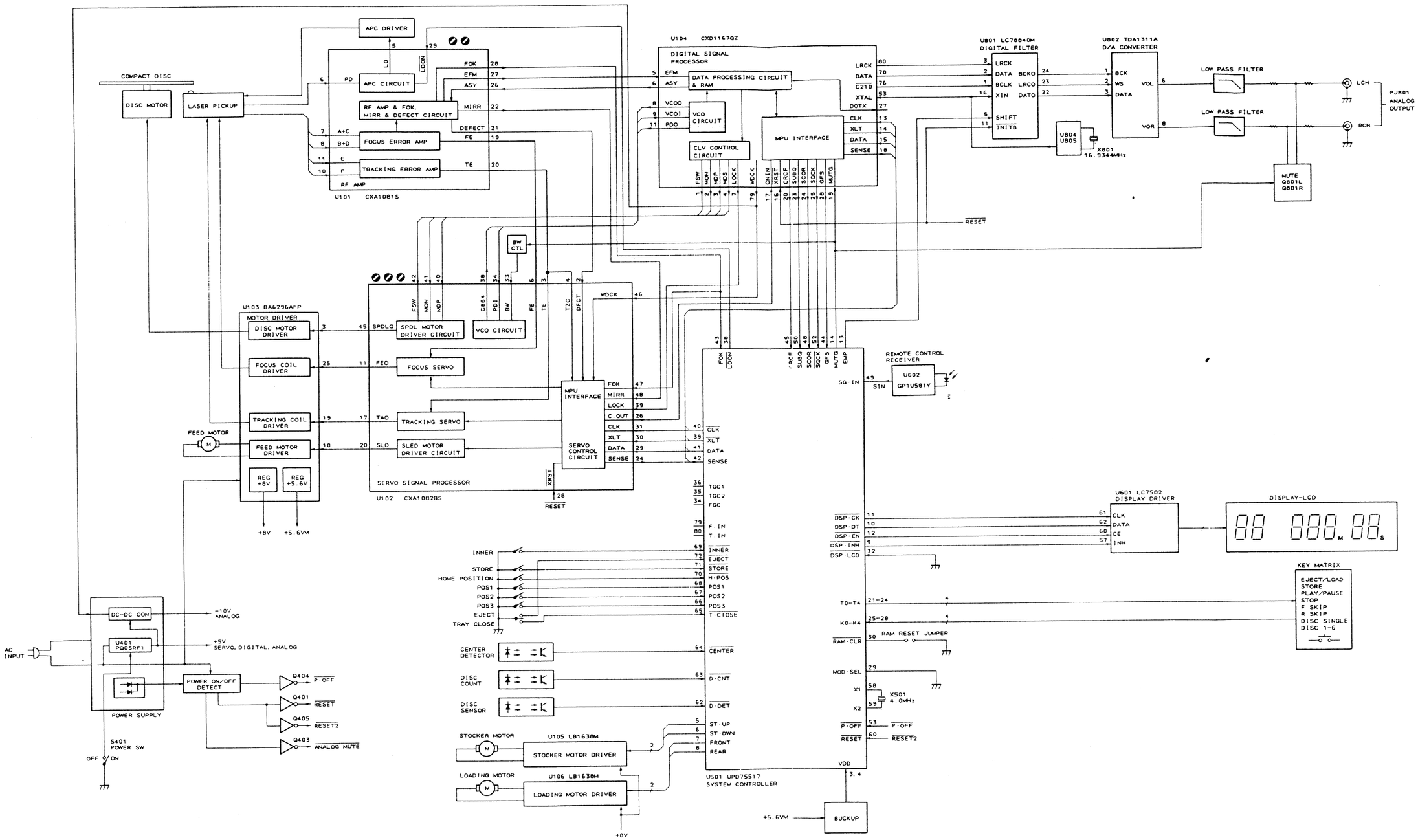
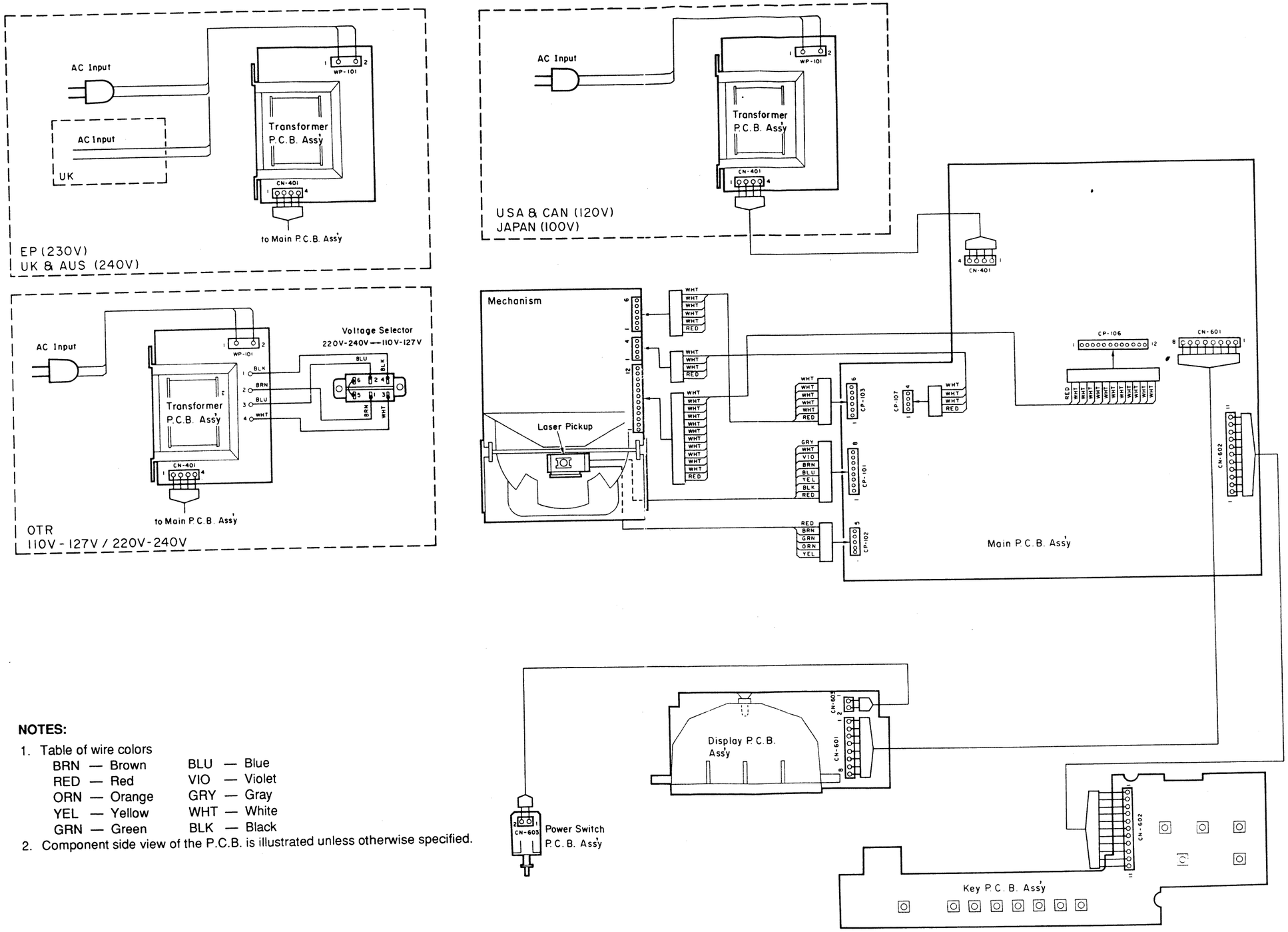


Fig. 9

10. WIRING DIAGRAMS



NOTES:

1. Table of wire colors

BRN	— Brown	BLU	— Blue
RED	— Red	VIO	— Violet
ORN	— Orange	GRY	— Gray
YEL	— Yellow	WHT	— White
GRN	— Green	BLK	— Black

2. Component side view of the P.C.B. is illustrated unless otherwise specified.

Fig. 10.1

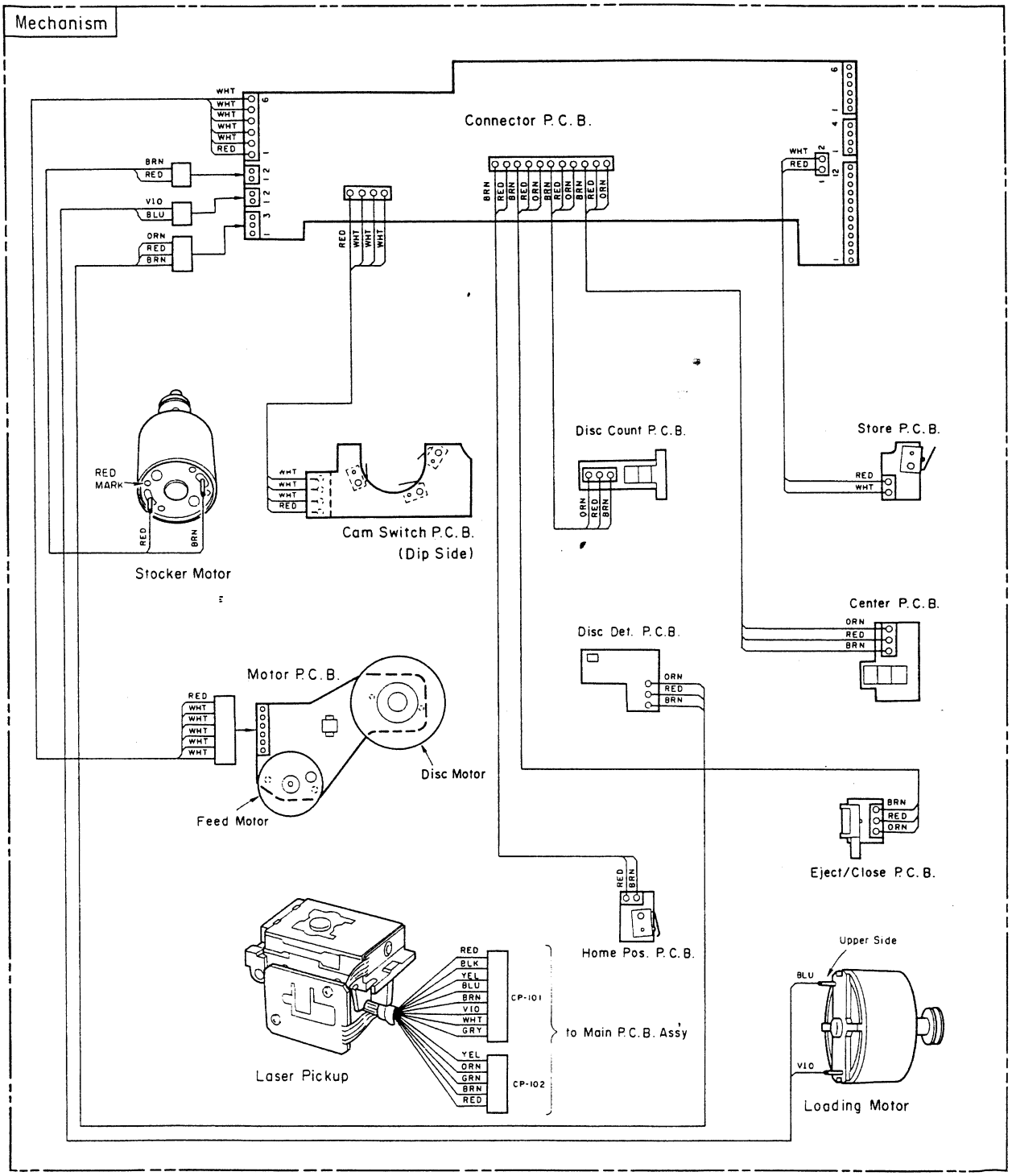

Mechanism
Connector P.C.B.
Stocker Motor
RED MARK
Cam Switch P.C.B.
(Dip Side)
Disc Count P.C.B.
Store P.C.B.
Center P.C.B.
Disc Det. P.C.B.
Motor P.C.B.
Disc Motor
Feed Motor
Eject/Close P.C.B.
Home Pos. P.C.B.
Laser Pickup
CP-101
CP-102
to Main P.C.B. Assy
Upper Side
Loading Motor

Fig. 10.2

SPECIFICATIONS

•Main Unit

System	Compact disc digital audio
Signal Readout	Optical (semiconductor laser)
Error Correction	CIRC principle
Number of channels	2 channels, stereo
D/A Converter type	16-bit Dual D/A converters with 4-times oversampling digital filter
Sampling Frequency	44.1 kHz
Quantization	16-bit linear
Disc Rotational Velocity	Approx. 200 to 500 rpm (constant linear velocity)
Wow and Flutter	Below measurement limit
Frequency Response	20-20,000 Hz + 0.8/–1.2 dB
Total Harmonic Distortion (T.H.D. + Noise)	0.07% (1 kHz, 0 dB)
Signal to Noise Ratio	Better than 85 dB (IHF A-WTD)
Dynamic Range	Better than 85 dB
Channel Separation	Better than 75 dB
Output Level/Impedance Line (Fixed)	1.8 V/600 ohms (1 kHz, 0 dB)
Power Source	120, 230, 240 or 110–127/220–240 VAC, 50/60 Hz (according to country of sale)
Power Consumption	10W max.
Dimensions*	428 (W) × 96 (H) × 270 (D) mm, 16-7/8(W) × 3-3/4 (H) × 10-5/8 (D) inches
Approximate Weight	5.0 kg, 11 lbs.

•Remote Control Unit

Principle	Infrared pulse system
Power Supply	3 VDC (1.5 V × 2)
Dimensions*	58 (W) × 17 (H) × 125 (D) mm, 2-5/16 (W) × 11/16 (H) × 4-15/16 (D) inches
Approximate Weight	120 g, 4 oz. (including batteries)

•Supplied Accessories ..... Shielded cable with RCA-type plug × 1
IEC R03 batteries (size AAA) × 2

* Dimensions do not include protruding parts. Height is the panel height.

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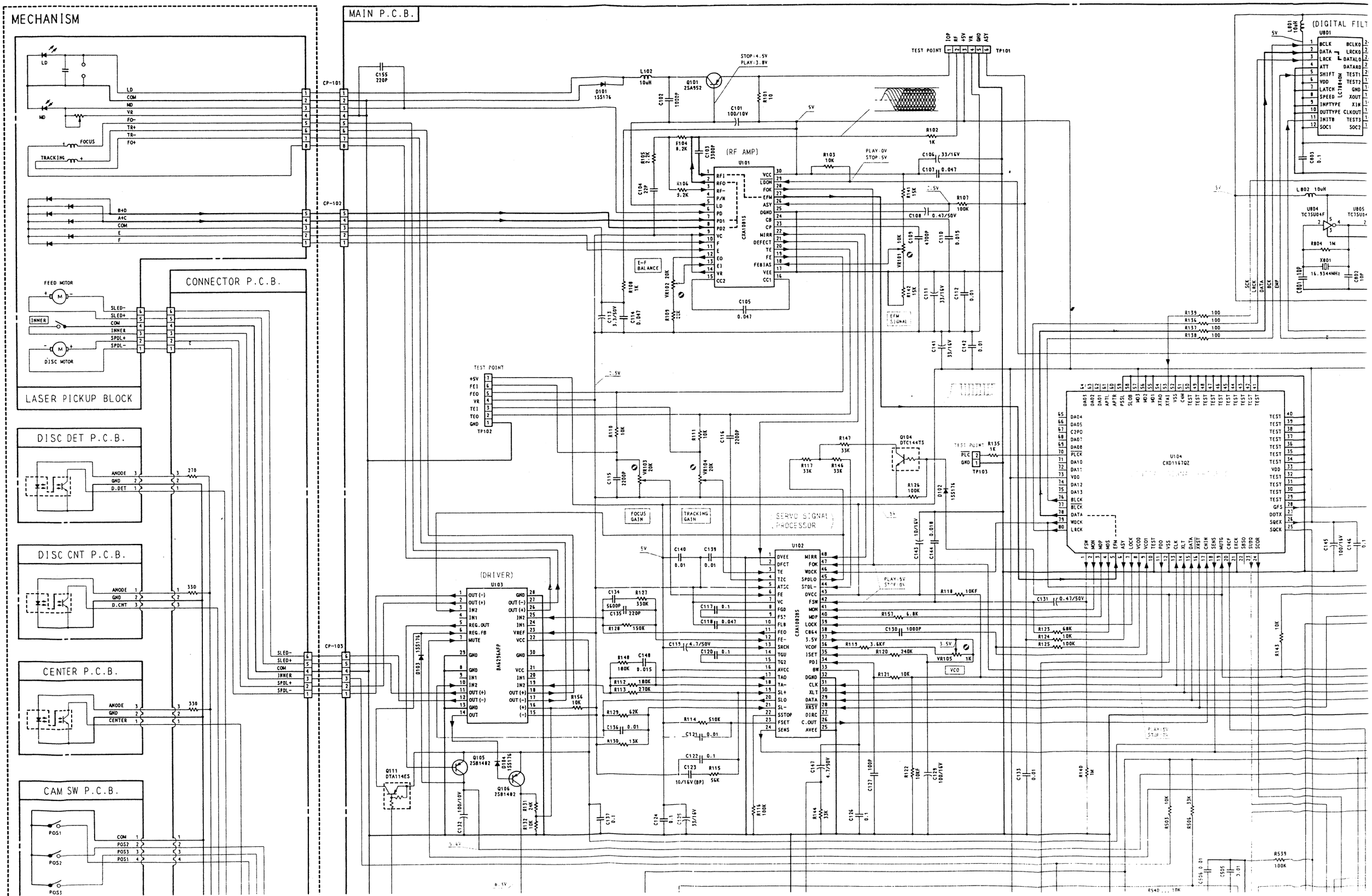
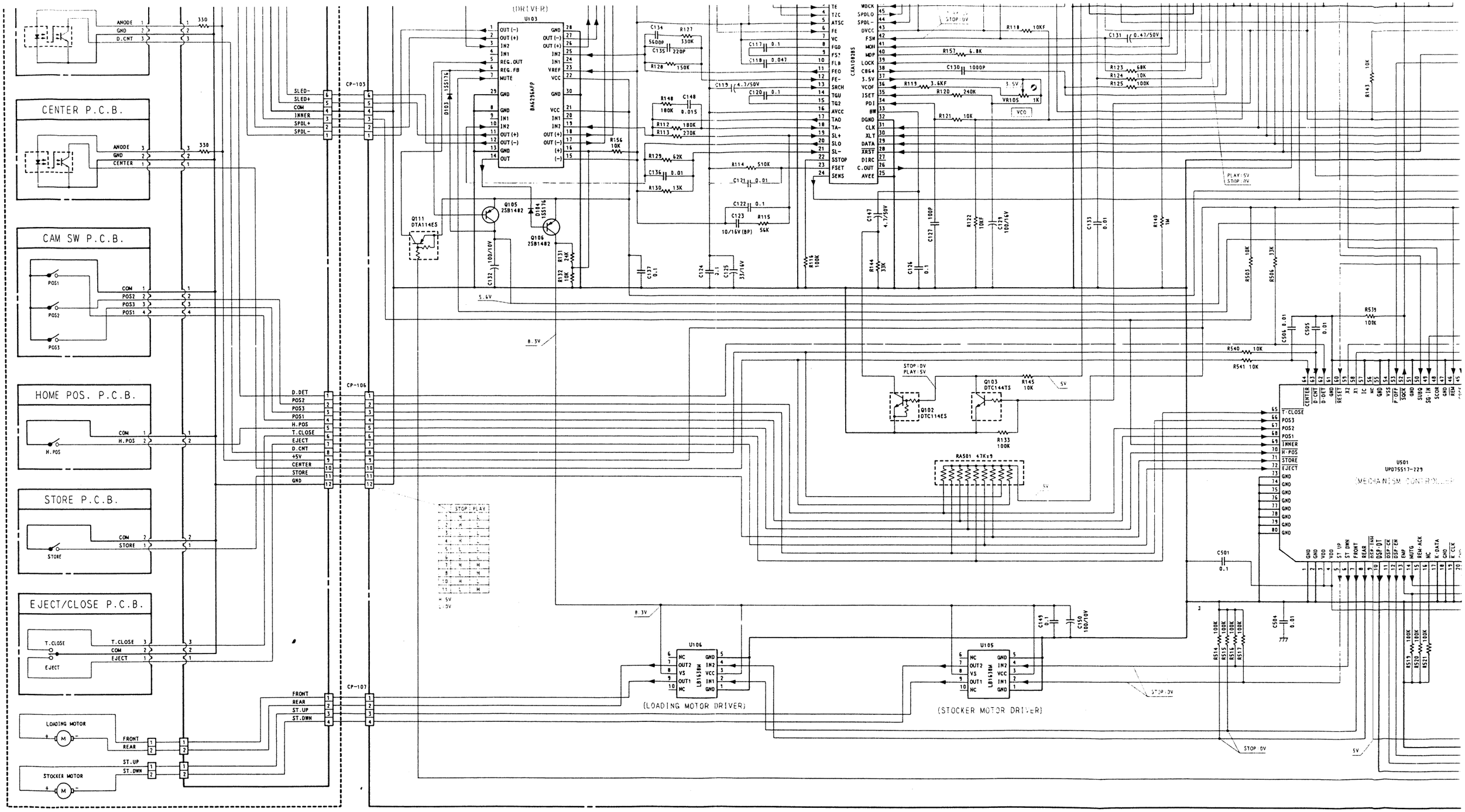
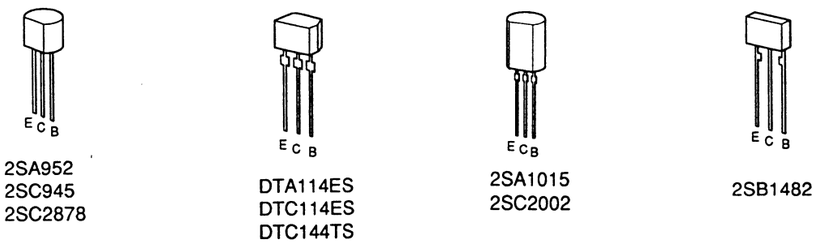
G-931210A Printed in Japan

SCHEMATIC DIAGRAM



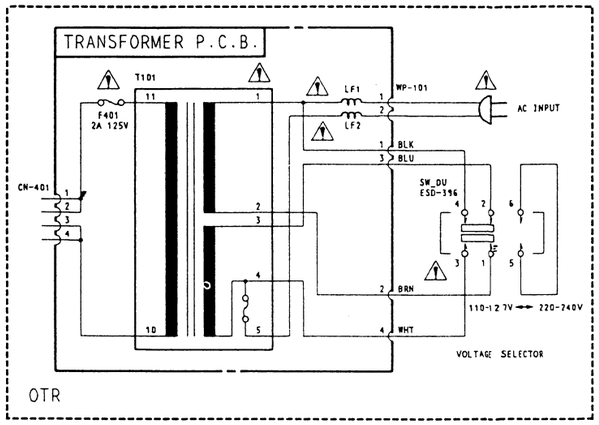

ANODE
GND
D.CNT
330
CENTER P.C.B.
ANODE
GND
CENTER
CAM SW P.C.B.
POS1
POS2
POS3
COM
HOME POS. P.C.B.
H.POS
STORE P.C.B.
STORE
EJECT/CLOSE P.C.B.
T.CLOSE
EJECT
LOADING MOTOR
FRONT
REAR
STOCKER MOTOR
ST.UP
ST.DWN
SLED-
SLED+
INNER
SPDL+
SPDL-
CP-103
CP-106
CP-107
D.DET
H.POS
+5V
CENTER
STORE
GND
FRONT
REAR
ST.UP
ST.DWN
(DRIVER)
U103
BA6295AFP
OUT (-)
OUT (+)
REG.OUT
REG.FB
MUTE
VCC
VREF
D103 1SS176
Q105 2SB1482
Q106 2SB1482
Q111 DTA114ES
R156 10K
R127 330K
R128 150K
R148 180K
R112 180K
R113 270K
R129 62K
R130 13K
R131 24K
R132 10K
C132 100/10V
C134 5600P
C135 220P
C136 0.01
C137 0.1
R114 510K
C121 0.01
C122 0.1
C123 10/16V(BP)
R115 56K
C124 2.1
C125 33/16V
R116 100K
C117 0.1
C118 0.047
C119 4.7/50V
C120 0.1
CXA1082BS
TE
TZC
ATSC
FE
VC
FGD
FSZ
FLB
FEO
FE-
SRCH
TGU
TG2
AVCC
TAO
TA-
SL+
SLO
SL-
SSTOP
FSET
SENS
WDCK
SPDLO
SPDL-
DVCC
FSW
MON
MDP
LOCK
CB64
3.5V
VCOF
ISET
PDI
BW
DGND
CLK
XLT
DATA
XRST
DIRC
C.OUT
AVEE
STOP:0V
R118 10KF
C131 0.47/50V
R157 6.8K
C130 1000P
R119 3.6KF
R120 240K
3.5V
VR105 1K
VCO
R121 10K
R123 68K
R124 10K
R125 100K
R143 10K
PLAY:5V
STOP:0V
C147 4.7/50V
C127 100P
R122 10KF
C129 100/16V
C133 0.01
R140 1M
R144 33K
C126 0.1
R503 10K
R506 13K
C506 0.01
C505 0.01
R539 100K
R540 10K
R541 10K
STOP:0V
PLAY:5V
Q102 DTC114ES
Q103 DTC144TS
R145 10K
R133 100K
5V
RA501 47K×9
U501
UPD75517-229
MECHANISM CONTROLLER
T.CLOSE
POS3
POS2
POS1
INNER
H.POS
STORE
EJECT
C501 0.1
C504 0.01
RS14 100K
RS15 100K
RS16 100K
RS17 100K
RS13 100K
RS20 100K
RS21 100K
8.3V
U106
LB1638M
NC
OUT2
VS
OUT1
IN2
VCC
IN1
GND
(LOADING MOTOR DRIVER)
U105
(STOCKER MOTOR DRIVER)
C145 0.1
C150 100/10V
STOP:0V
5V
H:5V
L:0V

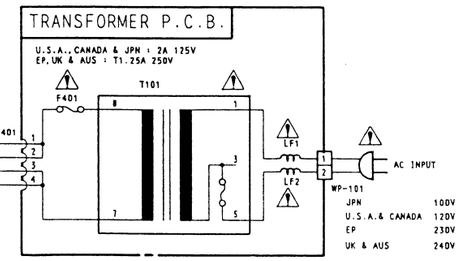

E C B
2SA952
2SC945
2SC2878
DTA114ES
DTC114ES
DTC144TS
2SA1015
2SC2002
2SB1482

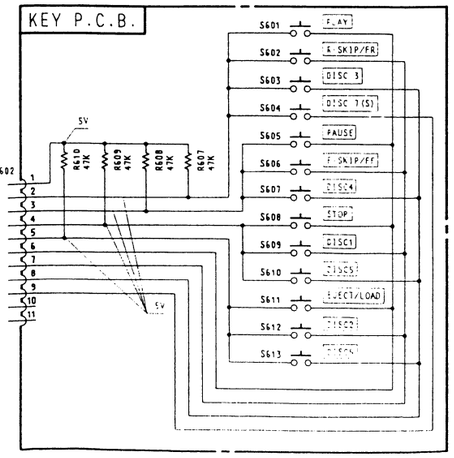
MB-4s

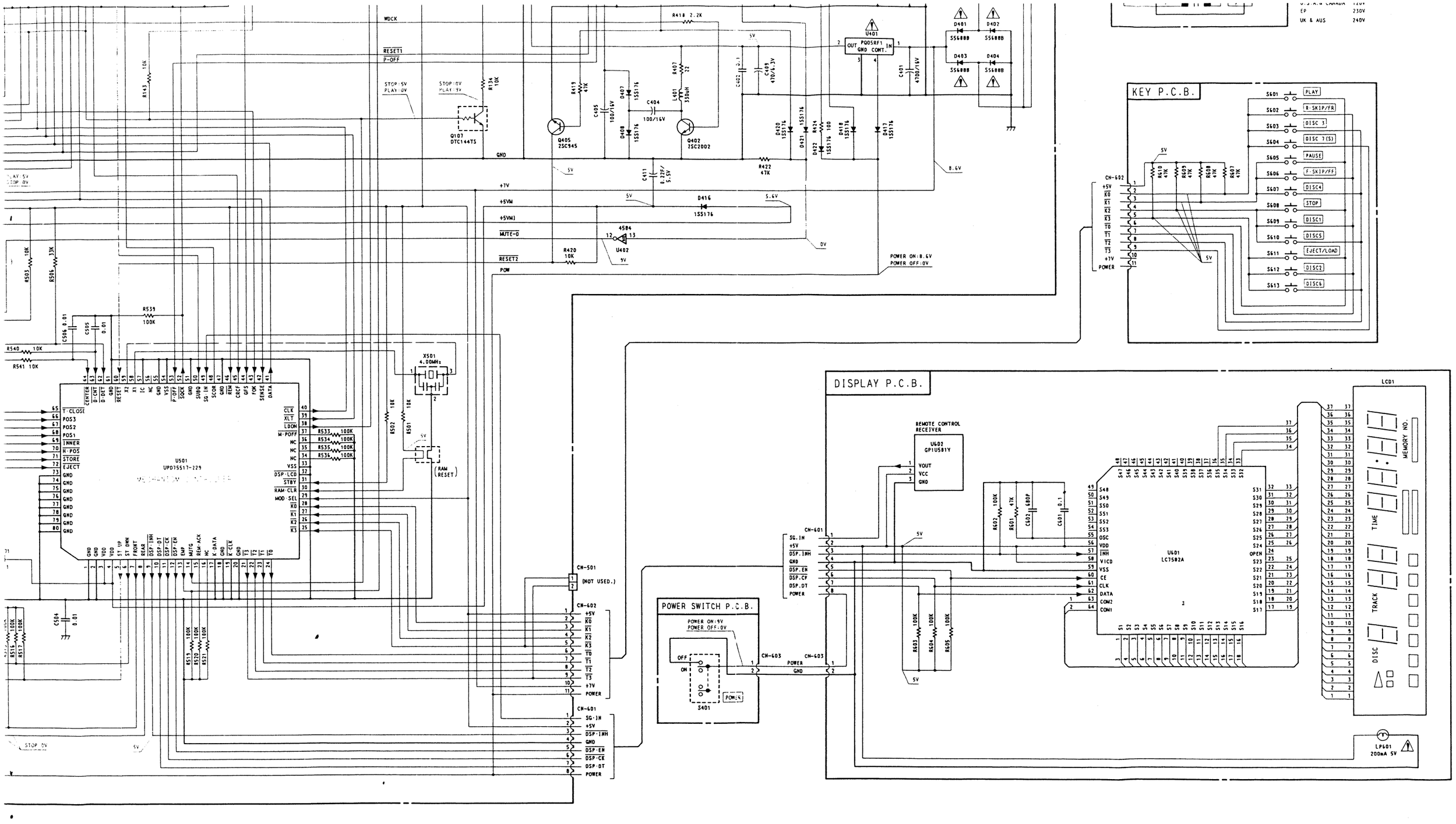
WARNING

Parts marked with the symbol ⚠ in the schematic diagram have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer. It is recommended that the unit be operated from a suitable DC supply or batteries during initial check-out procedures.









EP	230V
UK & AUS	240V

NOTES: 1. Diode is 1SS176, 1SS53, or 1S1555 unless otherwise specified.
2. Description of electrolytic capacitor: 100/16V = 100μ 16V